



## SEQUENCE LISTING

<110> WONG, SUSAN J.  
SHI, PEI-YONG

<120> DIAGNOSTIC TEST FOR WEST NILE VIRUS

<130> 454311-2232.1

<140> 10/699,550

<141> 2003-10-31

<150> 60/476,513

<151> 2003-06-06

<150> 60/422,755

<151> 2002-10-31

<150> PCT/US02/09036

<151> 2002-03-11

<150> 60/402,860

<151> 2002-08-08

<150> 60/281,947

<151> 2001-04-05

<150> 60/275,025

<151> 2001-03-12

<160> 20

<170> PatentIn Ver. 3.2

<210> 1

<211> 10975

<212> DNA

<213> West Nile virus

<400> 1

gctgacaaac	ttagtagtgt	ttgtgaggat	taacaacaat	taacacagtg	cgagctgttt	60
cttagcacga	agatctcgat	gtctaagaaa	ccaggagggc	ccggcaagag	ccgggctgtc	120
aatatgctaa	aacgcggaat	gccccgcgtg	ttgtccttga	ttggactgaa	gagggctatg	180
ttgagcctga	tcgacggcaa	ggggccaata	cgatttgtgt	tggctctctt	ggcgttcttc	240
aggttcacag	caattgctcc	gacccgagca	gtgctggatc	gatggagagg	tgtgaacaaa	300
caaacagcga	tgaaacacct	tctgagtttt	aagaaggaac	tagggacctt	gaccagtgtc	360
atcaatcggc	ggagctcaaa	acaaaagaaa	agaggaggaa	agaccggaat	tgagtcgatg	420
attggcctga	tcgccagcgt	aggagcagtt	accctctcta	acttccaagg	gaaggtgatg	480
atgacggtaa	atgctactga	cgtcacagat	gtcatcacga	ttccaacagc	tgctggaaag	540
aacctatgca	ttgtcagagc	aatggatgtg	ggatacatgt	gcgatgatac	tatcacttat	600
gaatgcccg	tgctgtcggc	tggtaatgat	ccagaagaca	tcgactgttg	gtgcacaaaag	660
tcagcagttt	acgtcaggta	tggaagatgc	accaagacac	gccactcaag	acgcagtcgg	720
aggtcactga	cagtcagac	acacggagaa	agcactctag	cgaacaagaa	gggggcttgg	780
atggacagca	ccaaggccac	aaggtacttg	gtaaaaacag	aatcatggat	cttgaggaac	840

cctggatatg	ccctggtggc	agccgtcatt	ggttggatgc	ttgggagcaa	caccatgcag	900
agagtttgt	ttgtcgtgct	attgcttttg	gtggccccag	cttacagctt	caactgcctt	960
ggaatgagca	acagagactt	cttggaaagga	gtgtctggag	caacatgggt	ggatttgggt	1020
ctcgaaggcg	acagctgcgt	gactatcatg	tctaaggaca	agcctacat	cgatgtgaag	1080
atgatgaata	tggaggcggc	caacctggca	gaggtccgca	gttattgcta	tttggctacc	1140
gtcagcgatc	tctccaccaa	agctgcgtgc	ccgaccatgg	gagaagctca	caatgacaaa	1200
cgtgctgacc	cagcttttgt	gtgcagacaa	ggagtgggtg	acaggggctg	gggcaacggc	1260
tgcggactat	ttggcaaagg	aagcattgac	acatgcgcca	aatttgccctg	ctctaccaag	1320
gcaataggaa	gaaccatctt	gaaagagaat	atcaagtacg	aagtggccat	ttttgtccat	1380
ggaccaacta	ctgtggagtc	gcacggaaac	tactccacac	aggttggagc	cactcaggca	1440
gggagattca	gcatcactcc	tgcagcgcc	tcatacacac	taaagcttgg	agaatatgga	1500
gaggtgacag	tggactgtga	accacgggtc	gggattgaca	ccaatgcata	ctacgtgatg	1560
actgttggaa	caaagacgtt	cttgggtccat	cgtgagtgg	tcattggacct	caacctccct	1620
tggagcagtg	ctggaagtac	tgtgtggagg	aacagagaga	cgtaaatgga	gtttgaggaa	1680
ccacacgcca	cgaagcagtc	tgtgatagca	ttgggctcac	aagagggagc	tctgcatcaa	1740
gctttggctg	gagccattcc	tgtggaattt	tcaagcaaca	ctgtcaagtt	gacgtcgggt	1800
catttgaagt	gtagagtga	gatggaaaaa	ttgcagttga	agggaaacaac	ctatggcgctc	1860
tgttcaaagg	ctttcaagtt	tcttgggact	cccgcagaca	caggtcacgg	cactgtgggtg	1920
ttggaattgc	agtacactgg	cacggatgga	ccttgcaaag	ttcctatctc	gtcagtggct	1980
tcatgaaacg	acctaacgcc	agtgggcaga	ttggtcactg	tcaacccttt	tgtttcaatg	2040
gccacggcca	acgctaagg	cctgattgaa	ttggaaccac	cctttggaga	ctcatacata	2100
gtggtgggca	gaggagaaca	acagatcaat	caccattggc	acaagtctgg	aagcagcatt	2160
ggcaaagcct	ttacaaccac	cctcaaagga	gcgcagagac	tagccgctct	aggagacaca	2220
gcttgggact	ttggatcagt	tggaggggtg	ttcacctcag	ttgggaaggc	tgtccatcaa	2280
gtgttcggag	gagcattccg	ctcactgttc	ggaggcatgt	cctggataac	gcaaggattg	2340
ctgggggctc	tctgtttgtg	gatgggcac	aatgctcgtg	ataggtccat	agctctcacg	2400
tttctcgcag	ttggaggagt	tctgctcttc	ctctccgtga	acgtgcacgc	tgacactggg	2460
tgtgccatag	acatcagccg	gcaagagctg	agatgtggaa	gtggagtgtt	catacacaat	2520
gagtgaggag	cttggatgga	ccggtacaag	tattaccctg	aaacgccaca	aggcctagcc	2580
aagatcattc	agaaagctca	taagggaagga	gtgtgcggtc	tacgatcagt	ttccagactg	2640
gagcatcaaa	tgtgggaagc	agtgaaggac	gagctgaaca	ctcttttgaa	ggagaatggt	2700
gtggacctta	gtgtcgtggt	tgagaaacag	gagggaatgt	acaagtcagc	acctaaacgc	2760
ctcacgcgca	ccacggaaaa	attggaaatt	ggctggaagg	cctggggaaa	gagtatttta	2820
tttgcaccag	aactcgccaa	caacaccttt	gtggttgatg	gtccggagac	caaggaatgt	2880
ccgactcaga	atcgcgcttg	gaatagctta	gaagtggagg	attttggatt	tggctctcacc	2940
agcactcgga	tgttcctgaa	ggtcagagag	agcaacacaa	ctgaatgtga	ctcgaagatc	3000
attggaacgg	ctgtcaagaa	caacttggcg	atccacagtg	acctgtccta	ttggattgaa	3060
agcaggctca	atgatacgtg	gaagcttgaa	agggcagttc	tgggtgaagt	caaatacatgt	3120
acgtggcctg	agacgcatac	cttgtggggc	gatggaatcc	ttgagagtga	cttgataata	3180
ccagtccacac	tggcgggacc	acgaagcaat	cacaatcgga	gacctgggta	caagacacaa	3240
aaccagggcc	catgggacga	aggccgggta	gagattgact	tcgattactg	cccaggaact	3300
acggtcaccc	tgagtgaag	ctgcggacac	cgtggacctg	ccactcgcac	caccacagag	3360
agcggaaagt	tgataacaga	ttggtgctgc	aggagctgca	ccttaccacc	actgcgctac	3420
caaactgaca	gcggctggtg	gtatggtatg	gagatcagac	cacagagaca	tgatgaaaag	3480
accctcgtgc	agtcacaagt	gaatgcttat	aatgctgata	tgattgacct	ttttcagttg	3540
ggccttcttg	tcgtgttctt	ggccacccag	caggtccttc	gcaagagggtg	gacagccaag	3600
atcagcatgc	cagctatact	gattgctctg	tatgtcctgg	tgtttggggg	cattacttac	3660
actgatgtgt	tacgttatgt	catcttgggtg	ggggcagctt	tcgcagaatc	taattcggga	3720
ggagacgtgg	tacacttggc	gctcatggcg	accttcaaga	tacaaccagt	gtttatgggtg	3780
gcatcgtttc	ttaaagcgag	atggaccaac	caggagaaca	ttttgttgat	gttggcggct	3840
gttttctttc	aaatggctta	tcacgatgcc	cgccaaattc	tgctctggga	gatccctgat	3900
gtgttgaatt	cactggcggt	agcttggatg	atactgagag	ccataacatt	cacaacgaca	3960
tcaaacgtgg	ttgttccgct	gctagccctg	ctaacacccg	ggctgagatg	cttgaatctg	4020
gatgtgtaca	ggatactgct	gttgatgggtc	ggaataggca	gcttgatcag	ggagaagagg	4080

agtgcagctg	caaaaaagaa	aggagcaagt	ctgctatgct	tggctctagc	ctcaacagga	4140
cttttcaacc	ccatgatcct	tgctgctgga	ctgattgcat	gtgatcccaa	ccgtaaacgc	4200
ggatggcccc	caactgaagt	gatgacagct	gtcggcctaa	tgtttgccat	cgtcggaggg	4260
ctggcagagc	ttgacattga	ctccatggcc	attccaatga	ctatcgcggg	gctcatgttt	4320
gctgctttcg	tgattttctg	gaaatcaaca	gatatgtgga	ttgagagaac	ggcggacatt	4380
tcttgggaaa	gtgatgcaga	aattacaggc	tcgagcgaaa	gagttgatgt	gcggtctgat	4440
gatgatggaa	acttccagct	catgaatgat	ccaggagcac	cttgggaagat	atggatgctc	4500
agaatggtct	gtctcgcgat	tagtgcgtag	accccttggg	caatcttgcc	ctcagtagtt	4560
ggattttgga	taactctcca	atacacaag	agaggaggcg	tgttgaggga	cactccctca	4620
ccaaaggagt	acaaaaagg	ggacacgacc	accggcgctc	acaggatcat	gactcgtggg	4680
ctgctcggca	gttatcaagc	aggagcgggc	gtgatggttg	aagggtgttt	ccacaccctt	4740
tggcatacaa	caaaaggagc	cgctttgatg	agcggagagg	gccgcctgga	cccatactgg	4800
ggcagtgtca	aggaggatcg	actttgttac	ggaggaccct	ggaaattgca	gcacaagtgg	4860
aacgggcagg	atgaggtgca	gatgattgtg	gtggaacctg	gcaagaacgt	taagaacgtc	4920
cagacgaaac	caggggtgtt	caaaacacct	gaaggagaaa	tcggggccgt	gactttggac	4980
ttccccactg	gaacatcagg	ctcaccaata	gtggacaaaa	acggtgatgt	gattgggctt	5040
tatggcaatg	gagtcataat	gccccacggc	tcatacataa	gcgcgatagt	gcagggtgaa	5100
aggatggatg	agccaatccc	agccggattc	gaacctgaga	tgctgaggaa	aaaacagatc	5160
actgtactgg	atctccatcc	cggcgccggg	aaaacaagga	ggattctgcc	acagatcatc	5220
aaagaggcca	taaacagaag	actgagaaca	gccgtgctag	caccaaccag	ggttgtggct	5280
gctgagatgg	ctgaagcact	gagaggactg	cccatccggg	accagacatc	cgcagtggcc	5340
agagaacata	atggaaatga	gattgttgat	gtcatgtgtc	atgctaccct	caccacagg	5400
ctgatgtctc	ctcacagggt	gccgaactac	aacctgttcg	tgatggatga	ggctcatttc	5460
accgaccag	ctagcattgc	agcaagaggt	tacatttcca	caaaggtcga	gctaggggag	5520
gcggcggcaa	tattcatgac	agccacccca	ccaggcactt	cagatccatt	cccagagtcc	5580
aattcaccaa	tttccgactt	acagactgag	atcccggatc	gagcttgga	ctctggatac	5640
gaatggatca	cagaatacac	cgggaagacg	gtttggtttg	tgctagtgt	caagatgggg	5700
aatgagattg	ccctttgcct	acaacgtgct	ggaaagaaag	tagtccaatt	gaacagaaag	5760
tcgtacgaga	cggagtaccc	aaaatgtaa	aacgatgatt	gggactttgt	tatcacaaca	5820
gacatatctg	aaatgggggc	taacttcaag	gcgagcagg	tgattgacag	ccggaagagt	5880
gtgaaaccaa	ccatcataac	agaaggagaa	gcgagagtga	tcttgggaga	accatctgca	5940
gtgacagcag	ctagtcccgc	ccagagacgt	ggacgtatcg	gtagaaatcc	gtcgcaagtt	6000
ggtgatgagt	actgttatgg	ggggcacacg	aatgaagacg	actcgaactt	cgcccattgg	6060
actgaggcac	gaatcatgct	ggacaacatc	aacatgccaa	acggactgat	cgctcaattc	6120
taccaaccag	agcgtgagaa	ggtatatacc	atggatgggg	aataccggct	cagaggagaa	6180
gagagaaaaa	actttctgga	actgttgagg	actgcagatc	tgccagtttg	gctggcttac	6240
aaggttgcag	cggctggagt	gtcataccac	gaccggagg	ggtgctttga	tggtcctagg	6300
acaaacacaa	ttttagaaga	caacaacgaa	gtggaagtca	tcacgaagct	tggtgaaagg	6360
aagattctga	ggccgcgctg	gattgacgcc	aggggtgtact	cggatcacca	ggcactaaag	6420
gcgttcaagg	acttcgcctc	gggaaaacgt	tctcagatag	ggctcattga	ggttctggga	6480
aagatgcttg	agcacttcat	ggggaagaca	tgggaagcac	ttgacaccat	gtacgttgtg	6540
gccactgcag	agaaaggagg	aagagctcac	agaatggccc	tggagggaact	gccagatgct	6600
cttcagacaa	ttgccttgat	tgcccttattg	agtgtgatga	ccatgggagt	attcttcctc	6660
ctcatgcagc	ggaagggcat	tggaaagata	ggtttgggg	gcgctgtctt	gggagtgcgc	6720
acctttttct	gttggatggc	tgaagttcca	ggaacgaaga	tcgccggaat	gttgctgtc	6780
tcccttctct	tgatgattgt	gctaattcct	gagccagaga	agcaacgttc	gcagacagac	6840
aaccagctag	ccgtgttcct	gatttgtgtc	atgacccttg	tgagcgagct	ggcagccaac	6900
gagatggggt	ggctagataa	gaccaagagt	gacataagca	gtttgttttg	gcaaagaatt	6960
gagggtcaagg	agaatttcag	catgggagag	tttcttctgg	acttgaggcc	ggcaacagcc	7020
tggtcactgt	acgctgtgac	aacagcggtc	ctcactccac	tgctaaagca	tttgatcacg	7080
tcagattaca	tcaacacctc	attgacctca	ataaacgttc	aggcaagtgc	actattcaca	7140
ctcgcgcgag	gcttcccctt	cgtcgatgtt	ggagtgtcgg	ctctcctgct	agcagccgga	7200
tgctggggac	aagtcaccct	caccgttacg	gtaacagcgg	caacactcct	tttttgccac	7260
tatgcctaca	tggttcccgg	ttggcaagct	gaggcaatgc	gctcagccca	gcggcggaca	7320

gcggccgggaa	tcatgaagaa	cgctgtagtg	gatggcatcg	tggccacgga	cgtcccagaa	7380
ttagagcgca	ccacacccat	catgcagaag	aaagttggac	agatcatgct	gatcttgggtg	7440
tctctagctg	cagtagtagt	gaacccgtct	gtgaagacag	tacgagaagc	cgggaattttg	7500
atcacggccg	cagcgggtgac	gctttgggag	aatggagcaa	gctctgtttg	gaacgcaaca	7560
actgccatcg	gactctgccca	catcatgcgt	gggggttggt	tgtcatgtct	atccataaca	7620
tggacactca	taaagaacat	ggaaaaacca	ggactaaaaa	gaggtggggc	aaaaggacgc	7680
accttgggag	aggtttggaa	agaaagactc	aaccagatga	caaaagaaga	gttcactagg	7740
taccgcaaag	aggccatcat	cgaagtcgat	cgctcagcgg	caaaacacgc	caggaaagaa	7800
ggcaatgtca	ctggagggca	tccagtctct	aggggcacag	caaaactgag	atggctgggtc	7860
gaacggaggt	ttctcgaacc	ggtcggaaaa	gtgattgacc	ttggatgtgg	aagaggcggg	7920
tggtgttact	atatggcaac	ccaaaaaaga	gtccaagaag	tcagagggta	cacaaagggc	7980
gggtcccggac	atgaagagcc	ccaactagtg	caaagttatg	gatggaacat	tgtcaccatg	8040
aagagtggag	tggatgtggt	ctacagacct	tctgagtgtt	gtgacaccct	cctttgtgac	8100
atcggagagt	cctcgtcaag	tgctgaggtt	gaagagcata	ggacgattcg	ggtccttgaa	8160
atggttgagg	actggctgca	ccgagggcca	aggggaatttt	gcgtgaaggt	gctctgcccc	8220
tacatgccga	aagtcataga	gaagatggag	ctgctccaac	gccggtatgg	gggggggactg	8280
gtcagaaacc	cactctcacg	gaattccacg	cacgagatgt	attgggtgag	tcgagcttca	8340
ggcaatgtgg	tacattcagt	gaatatgacc	agccaggtgc	tcctaggaag	aatggaaaaa	8400
aggacctgga	agggacccca	atacagggaa	gacgtaaact	tgggaagtgg	aaccagggcg	8460
gtgggaaaac	ccctgctcaa	ctcagacacc	agtaaaatca	agaacaggat	tgaacgactc	8520
aggcgtgagt	acagttcgac	gtggcaccac	gatgagaacc	acccatatag	aacctggaac	8580
tatcacggca	gttatgatgt	gaagcccaca	ggctccgcca	gttcgctggg	caatggagtg	8640
gtcaggctcc	tctcaaaacc	atgggacacc	atcacgaatg	ttaccaccat	ggccatgact	8700
gacactactc	ccttcgggca	gcagcgagtg	ttcaaagaga	aggtggacac	gaaagctcct	8760
gaaccgccag	aaggagtga	gtacgtgctc	aacgagacca	ccaactgggt	gtgggcggtt	8820
ttggccagag	aaaaacgtcc	cagaatgtgc	tctcgagagg	aattcataag	aaaggtcaac	8880
agcaatgcag	ctttgggtgc	catgtttgaa	gagcagaatc	aatggaggag	cgccagagaa	8940
gcagttgaag	atccaaaatt	ttgggagatg	gtggatgagg	agcgcgaggc	acatctgcgg	9000
ggggaatgtc	acacttgcac	ttacaacatg	atgggaaaga	gagagaaaaa	acccggagag	9060
ttcggaaagg	ccaagggaa	cagagccatt	tggttcatgt	ggctcggagc	tcgctttctg	9120
gagttcgagg	ctctgggttt	tctcaatgaa	gaccactggc	ttggaagaaa	gaactcagga	9180
ggaggtgtcg	agggtctggg	cctccaaaaa	ctgggttaca	tcttcgctga	agttggcacc	9240
cggcctgggg	gcaagatcta	tgctgatgac	acagctggct	gggacacccg	catcacgaga	9300
gctgacttgg	aaaatgaagc	taaggtgctt	gagctgcttg	atgggggaaca	tcggcgtcct	9360
gccagggcca	tcattgagct	cacctatcgt	cacaaagttg	tgaagtgat	gcgcccggct	9420
gctgatggaa	gaaccgtcat	ggatgttatc	tccagagaag	atcagagggg	gagtggacaa	9480
gttgtcacct	acgccctaaa	cactttcacc	aacctggccg	tccagctggg	gaggatgatg	9540
gaaggggaag	gagtgattgg	cccagatgat	gtggagaaac	tcacaaaagg	gaaaggaccc	9600
aaagtcaagg	cctggctgtt	tgagaatggg	gaagaaagac	tcagccgcat	ggctgtcagt	9660
ggagatgact	gtgtgggtaa	gcccctggac	gategctttg	ccacctcgct	ccacttcctc	9720
aatgctatgt	caaaggttcg	caaagacatc	caagagtggg	aaccgtcaac	tggatgggat	9780
gattggcagc	aggttccatt	ttgctcaaac	catttcactg	aattgatcat	gaaagatgga	9840
agaacactgg	tggttccatg	ccgaggacag	gatgaattgg	taggcagagc	tcgcatatct	9900
ccaggggccc	gatggaacgt	ccgcgacact	gcttgtctgg	ctaagtctta	tgcccagatg	9960
tggctgcttc	tgtacttcca	cagaagagac	ctgcggctca	tggccaacgc	catttgctcc	10020
gctgtccctg	tgaattgggt	ccctaccgga	agaaccacgt	ggtccatcca	tcaggagga	10080
gagtggatga	caacagagga	catgttggag	gtctggaacc	gtgtttggat	agaggagaat	10140
gaatggatgg	aagacaaaac	cccagtgagg	aaatggagtg	acgtcccata	ttcaggaaaa	10200
cgagaggaca	tctgggtgtg	cagcctgatt	ggcacaagag	cccagaccac	gtgggcagaa	10260
aacatccagg	tggctatcaa	ccaagtcaga	gcaatcatcg	gagatgagaa	gtatgtggat	10320
tacatgagtt	cactaaagag	atatgaagac	acaactttgg	ttgaggacac	agtactgtag	10380
atatttaatt	aattgtaaat	agacaatata	agtatgcata	aaagtgtagt	tttatagtag	10440
tatttagtgg	tgtagtgta	aatagttaa	aaaattttga	ggagaaagtc	aggccgggaa	10500
gttcccgcga	ccggaagttg	agtagacggt	gctgcctgcg	actcaacccc	aggaggactg	10560

```

ggtgaacaaa gccgcgaagt gatccatgta agccctcaga accgtctcgg aaggaggacc 10620
ccacatgttg taacttcaaa gcccattgtc agaccacgct acggcgtgct actctgcgga 10680
gagtgcagtc tgcgatagtg ccccaggagg actgggttaa caaaggcaaa ccaacgcccc 10740
acgcggccct agccccggta atgggtgttaa ccagggcgaa aggactagag gttagaggag 10800
accccgcggt ttaaagtgca cggcccagcc tggctgaagc tgtaggtcag gggaaggact 10860
agaggttagt ggagaccccc tgccacaaaa caccacaaca aaacagcata ttgacacctg 10920
ggatagacta ggagatcttc tgctctgcac aaccagccac acggcacagt gcgcc 10975

```

<210> 2

<211> 11029

<212> DNA

<213> West Nile virus

<400> 2

```

agtagttcgc ctgtgtgagc tgacaaactt agtagtgttt gtgaggatta acaacaatta 60
acacagtgcg agctgtttct tagcacgaag atctcgatgt ctaagaaacc aggagggccc 120
ggcaagagcc gggctgtcaa tatgctaaaa cgcggaatgc cccgcgtggt gtccttgatt 180
ggactgaaga gggctatggt gagcctgatc gacggcaagg ggccaatacg atttggttg 240
gctctcttgg cgttcttcag gttcacagca attgctccga cccgagcagt gctggatcga 300
tggagaggtg tgaacaaaca aacagcgatg aaacaccttc tgagttttta gaaggaacta 360
gggaccttga ccagtgcctat caatcggcgg agctcaaac aaaagaaaag aggaggaaag 420
accggaattg cagtcatgat tggcctgatc gccagcgtag gacgagttac cctctctaac 480
ttccaaggga aggtgatgat gacggtaaat gctactgacg tcacagatgt catcacgatt 540
ccaacagctg ctggaaagaa cctatgcatt gtcagagcaa tggatgtggg atacatgtgc 600
gatgatacta tcacttatga atgcccagtg ctgtcggctg gtaatgatcc agaagacatc 660
gactgtttgg gcacaaagtc agcagtctac gtcaggatag gaagatgcac caagacacgc 720
cactcaagac gcagtcggag gtcactgaca gtgcagacac acggagaaaag cactctagcg 780
aacaagaagc gggcttggat ggacagcacc aaggccacaa ggtatttggg aaaaacagaa 840
tcattgactt tgaggaaccc tggatatgcc ctggtggcag ccgtcatttg ttggatgctt 900
gggagcaaca ccattgcagag agttgtgttt gtcgtgctat tgcttttggg ggccccagct 960
tacagcttca actgccttgg aatgagcaac agagacttct tggaaggagt gtctggagca 1020
acatgggtgg atttggttct cgaaggcgac agctgcgtga ctatcatgtc taaggacaag 1080
cctaccatcg atgtgaagat gatgaatatg gaggcggcca acctggcaga ggtccgcagt 1140
tattgctatt tggctaccgt cagcgatctc tccaccaaag ctgcgtgccc gaccatggga 1200
gaagctcaca atgacaaacg tgctgaccca gcttttgtgt gcagacaagg agtgggtggac 1260
aggggctggg gcaacggctg cggattattt ggcaaaggaa gcattgacac atgcgccaaa 1320
tttgctgct ctaccaaggc aataggaaga accatcttga aagagaatat caagtacgaa 1380
gtggccattt ttgtccatgg accaactact gtggagtcgc acggaaacta ctccacacag 1440
gttgagacca ctcaggcagg gagattcagc atcactcctg cggcgcttc atacacacta 1500
aagcttgagg aatatggaga ggtgacagtg gactgtgaac cacggtcagg gattgacacc 1560
aatgcatact acgtgatgac tgttggaaca aagacgttct tgggtccatc tgagtgggtc 1620
atggacctca acctcccttg gagcagtgct ggaagtactg tgtggaggaa cagagagacg 1680
ttaatggagt ttgaggaacc acacgccacg aagcagtcgt tgatagcatt gggctcacia 1740
gagggagctc tgcattcaagc tttggctgga gccattcctg tggaattttc aagcaacact 1800
gtcaagttga cgtcgggtca tttgaagtgt agagtgaaga tggaaaaatt gcagttgaag 1860
ggaacaacct atggcgtctg ttcaaaggct ttcaagtttc ttgggactcc cgcagacaca 1920
ggtcacggca ctgtggtgtt ggaattgcag tacactggca cggatggacc ttgtaaagt 1980
cctatctcgt cagtggcttc attgaacgac ctaacgccag tgggcagatt ggtcactgtc 2040
aacccttttg tttcagtggc cacggccaac gctaaggtcc tgattgaatt ggaaccaccc 2100
tttgagact catacatagt ggtgggcaga ggagaacaac agatcaatca ccattggcac 2160
aagtctggaa gcagcattgg caaagccttt acaaccaccc tcaaaggagc gcagagacta 2220
gccgctctag gagacacagc ttgggacttt ggatcagttg gaggggtgtt cacctcagtt 2280
gggaaggctg tccatcaagt gttcggagga gcattccgct tactgttcgg aggcattgtc 2340

```

tggataacgc	aaggattgct	gggggctctc	ctgttggtgga	tgggcatcaa	tgctcgtgat	2400
aggtccatag	ctctcacgtt	tctcgcagtt	ggaggagtcc	tgctcttcct	ctccgtgaac	2460
gtgcacgctg	acactgggtg	tgccatagac	atcagccggc	aagagctgag	atgtggaagt	2520
ggagtgttca	tacacaatga	tgtggaggct	tggatggacc	gatacaagta	ttaccctgaa	2580
acgccacaag	gcctagccaa	gatcattcag	aaagctcata	aggaaggagt	gtgcggtcta	2640
cgatcagttt	ccagactgga	gcatcaaagt	tgggaagcag	tgaaggacga	gctgaacact	2700
cttttgaagg	agaatggtgt	ggaccttagt	gtcgtggttg	agaaacagga	gggaatgtac	2760
aagtcagcac	ctaaacgcct	caccgccacc	acggaaaaat	tggaaattgg	ctggaaggcc	2820
tggggaaaga	gtattttatt	tgcaccagaa	ctcgccaaca	acacctttgt	ggttgatggt	2880
ccggagacca	aggaatgtcc	gactcagaat	cgcgcttgga	atagcttaga	agtggaggat	2940
tttggtattg	gtctcaccag	cactcggatg	ttcctgaagg	tcagagagag	caacacaact	3000
gaatgtgact	cgaagatcat	tggaacggct	gtcaagaaca	acttggcgat	ccacagtga	3060
ctgtcctatt	ggattgaaag	caggctcaat	gatacgtgga	agcttgaaag	ggcagttctg	3120
ggtgaagtca	aatcatgtac	gtggcctgag	acgcatacct	tgtggggcga	tggaatcctt	3180
gagagtga	tgataatacc	agtcacactg	gcgggaccac	gaagcaatca	caatcggaga	3240
cctgggtaca	agacacaaaa	ccagggccca	tgggacgaag	gccgggtaga	gattgacttc	3300
gattactgcc	caggaactac	ggtcaccctg	agtgaagagct	gcggacaccg	tggacctgcc	3360
actcgcacca	ccacagagag	cggaaagtgt	ataacagatt	ggtgctgcag	gagctgcacc	3420
ttaccaccac	tgcgctacca	aactgacagc	ggctgttggt	atggtatgga	gatcagacca	3480
cagagacatg	atgaaaagac	cctcgtgcag	tcacaagtga	atgcttataa	tgctgatatg	3540
attgaccctt	ttcagttggg	ccttctgtgc	gtgcttcttg	ccaccagga	ggtccttcgc	3600
aagaggtgga	cagccaagat	cagcatgccca	gctatactga	ttgctctgct	agtcctggtg	3660
tttgggggca	ttacttacac	tgatgtgtta	cgctatgtca	tcttggtggg	ggcagctttc	3720
gcagaatcta	attcgggagg	agacgtggta	cacttggcgc	tcattggcgac	cttcaagata	3780
caaccagtgt	ttatggtggc	atcgtttctc	aaagcgagat	ggaccaacca	ggagaacatt	3840
ttgttgatgt	tggcggtgtg	tttctttcaa	atggccttct	acgatgcccg	ccaaattctg	3900
ctctgggaga	tccctgatgt	gttgaattca	ctggcggtag	cttggatgat	actgagagcc	3960
ataacattca	caacgacatc	aaacgtggtt	gttcgcgtgc	tagccctgct	aacacccggg	4020
ctgagatcgt	tgaatctgga	tgtgtacagg	atactgctgt	tgatggtcgg	aataggcagc	4080
ttgatcaggg	agaagaggag	tgacagctgca	aaaaagaaaag	gagcaagtct	gctatgcttg	4140
gctctagcct	caacaggact	tttcaacccc	atgatccttg	ctgctggact	gattacatgt	4200
gatcccaacc	gtaaacgcgg	atggcccgcga	actgaagtga	tgacagctgt	cggcctgatg	4260
tttgccatcg	tcggaggggct	ggcagagctt	gacattgact	ccatggccat	tccaatgact	4320
atcgcggggc	tcattgtttgc	tgctttcgtg	atcttctggga	aatcaacaga	tatgtggatt	4380
gagagaacgg	cggacatttc	ctgggaaagt	gatgcagaaa	ttacaggctc	gagcgaaaga	4440
gttgatgtgc	ggcttgatga	tgatggaaac	ttccagctca	tgaatgatcc	aggagcacct	4500
tggaaagatat	ggatgctcag	aatggtctgt	ctcgcgatta	gtgcgtacac	cccctgggca	4560
atcttgccct	cagtgtttgg	atcttgata	actctccaat	acacaaagag	aggaggcgtg	4620
ttgtgggaca	ctccctcacc	aaaggagtac	aaaaaggggg	acacgaccac	cggcgtctac	4680
aggatcatga	ctcgtgggct	gctcggcagt	tatcaagcag	gagcgggcgt	gatggttgaa	4740
ggtgttttcc	acaccctttg	gcatacaaca	aaaggagccg	ctttgatgag	cggagagggc	4800
cgcttgacc	catactgggg	cagtgtcaag	gaggatcgac	tttggttacgg	aggaccctgg	4860
aaattgcagc	acaagtggaa	cgggcaggat	gaggtgcaga	tgattgtggt	ggaacctggc	4920
aagaacgtta	agaacgtcca	gacgaaacca	ggggtgttca	aaacacctga	aggagaaatc	4980
ggggccgtga	ctttggactt	ccccactgga	acatcaggct	caccaatagt	ggacaaaaac	5040
ggtgatgtga	ttgggcttta	tggcaatgga	gtcataatgc	ccaacggctc	atacataagc	5100
gcgatagtgc	agggtgaaa	gatggatgag	ccaatcccag	ccggattcga	acctgagatg	5160
ctgaggaaaa	aacagatcac	tgtactggat	ctccatcccg	gcgccggtaa	aacaaggagg	5220
attctgccac	agatcatcaa	agaggccata	aacagaagac	tgagaacagc	cgtgctagca	5280
ccaaccaggg	ttgtggctgc	tgagatggct	gaagcactga	gaggactgcc	catccggtac	5340
cagacatccg	cagtgcctcag	agaacataat	ggaaatgaga	ttgttgatgt	catgtgtcat	5400
gctaccctca	cccacaggct	gatgtctcct	cacaggggtg	cgaactacaa	cctgttcgtg	5460
atggatgagg	ctcatttcac	cgaccagct	agcattgcag	caagagggtta	catttccaca	5520
aaggtcgagc	taggggaggc	ggcggcaata	ttcatgacag	ccacccacc	aggcatttca	5580

gatccattcc	cagagtccaa	ttcaccaatt	tccgacttac	agactgagat	cccggatcga	5640
gcttggaact	ctggatcacg	atggatcaca	gaatacaccg	ggaagacggt	ttggtttgtg	5700
cctagtgtca	agatggggaa	tgagattgcc	ctttgcctac	aacgtgctgg	aaagaaagta	5760
gtccaattga	acagaaagtc	gtacgagacg	gagtacccaa	aatgtaagaa	cgatgattgg	5820
gactttgtta	tcacaacaga	catatctgaa	atgggggcta	actttaaggc	gagcaggggtg	5880
attgacagcc	ggaagagtgt	gaaaccaacc	atcataacag	aaggagaagg	gagagtgtatc	5940
ctggggagaac	catctgcagt	gacagcagct	agtgccgccc	agagacgtgg	acgtatcggg	6000
agaaatccgt	cgcaagttgg	tgatgagtac	tggtatgggg	ggcacacgaa	tgaagacgac	6060
tcgaaacttcg	cccattggac	tgaggcacga	atcatgctgg	acaacatcaa	catgccaaac	6120
ggactgatcg	ctcaattcta	ccaaccagag	cgtgagaagg	tatataccat	ggatggggaa	6180
taccggctca	gaggagaaga	gagaaaaaac	tttctggaac	tggtgaggac	tgcatatctg	6240
ccagtttggc	tggtttacaa	ggttgcagcg	gctggagtgt	cataccacga	ccggaggtgg	6300
tgctttgatg	gtcctaggac	aaacacaatt	ttagaagaca	acaacgaagt	ggaagtcatc	6360
acgaagcttg	gtgaaaggaa	gattctgagg	ccgcgctgga	ttgacgccag	ggtgtactcg	6420
gatcaccagg	cactaaaggc	gttcaaggac	ttcgctcgg	gaaaacgttc	tcagataggg	6480
ctcattgagg	ttctgggaaa	gatgcctgag	cacttcatgg	ggaagacatg	ggaagcactt	6540
gacaccatgt	acgttgtggc	cactgcagag	aaaggaggaa	gagctcacag	aatggccctg	6600
gaggaactgc	cagatgctct	tcagacaatt	gccttgattg	ccttattgag	tgtgatgacc	6660
atgggagtat	tcttctctct	catgcagcgg	aagggcattg	gaaagatagg	tttgggaggc	6720
gctgtcttgg	gagtcgcgac	ctttttctgt	tggatggctg	aagttccagg	aacgaagatc	6780
gccggaatgt	tgctgctctc	ccttctcttg	atgattgtgc	taattcctga	gccagagaag	6840
caacgttcgc	agacagacaa	ccagctagcc	gtgttcctga	tttgtgtcat	gacccttgtg	6900
agcgcagtgg	cagccaacga	gatgggttgg	ctagataaga	ccaagagtga	cataagcagt	6960
ttgtttgggc	aaagaattga	ggtcaaggag	aatttcagca	tgggagagtt	tcttctggac	7020
ttgaggccgg	caacagcctg	gtcactgtac	gctgtgacaa	cagcggctct	cactccactg	7080
ctaaagcatt	tgatcacgtc	agattacatc	aacacctcat	tgacctcaat	aaacggttcag	7140
gcaagtgcac	tattcacact	cgcgcgaggc	ttccccttcg	tcgatgttgg	agtgtcggct	7200
ctcctgctag	cagccggatg	ctggggacaa	gtcaccttca	ccgttacggt	aacagcggca	7260
acactccttt	tttgccacta	tgccctacatg	gttcccgggt	ggcaagctga	ggcaatgcgc	7320
tcagcccagc	ggcggaacgc	ggccggaatc	atgaagaacg	ctgtagtggg	tggcatcgtg	7380
gccacggacg	tcccagaatt	agagcgcacc	acacccatca	tgcagaagaa	agttggacag	7440
atcatgctga	tcttgggtgc	tctagctgca	gtagtgtgga	acccgtctgt	gaagacagta	7500
cgagaagccg	gaattttgat	cacggccgca	gcggtgacgc	tttgggagaa	tggagcaagc	7560
tctgttttga	acgcaacaac	tgccatcgga	ctctgccaca	tcatgcgtgg	gggttggttg	7620
tcatgtctat	ccataacatg	gacactcata	aagaacatgg	aaaaaccagg	actaaaaaga	7680
ggtggggcaa	aaggacgcac	cttgggagag	gtttggaaag	aaagactcaa	ccagatgaca	7740
aaagaagagt	tacttaggta	ccgcaaagag	gccatcatcg	aagtcgatcg	ctcagcagca	7800
aaacacgcca	ggaaagaagg	caatgtcact	ggagggcatc	cagtctctag	gggcacagca	7860
aaactgagat	ggctggtcga	acggaggttt	ctcgaaccgg	tcggaaaagt	gattgacctt	7920
ggatgtggaa	gagggcggtg	gtgttactat	atggcaaccc	aaaaaagagt	ccaagaagtc	7980
agaggggtaca	caaagggcgg	tcccggacat	gaagagcccc	aactagtgca	aagttatgga	8040
tgggaacattg	tcaccatgaa	gagtgggggtg	gatgtgttct	acagaccttc	tgagtgttgt	8100
gacaccctcc	tttgtgacat	cggagagtcc	tcgtcaagtg	ctgaggttga	agagcatagg	8160
acgattcggg	tccttgaaat	ggttgaggac	tggttcgacc	gagggccaag	ggaattttgc	8220
gtgaaggtgc	tctgccccta	catgccgaaa	gtcatagaga	agatggagct	gctccaacgc	8280
cggtatgggg	ggggactggg	cagaaaacca	ctctcacgga	attccacgca	cgagatgtat	8340
tgggtgagtc	gagcttcagg	caatgtggta	cattcagtga	atatgaccag	ccaggtgctc	8400
ctaggaagaa	tggaaaaaag	gacctggaag	ggaccccaat	acgaggaaga	tgtaaaacttg	8460
ggaagtggaa	ccagggcggt	gggaaaaccc	ctgctcaact	cagacaccag	taaaatcaag	8520
aacaggattg	aacgactcag	gcgtgagtac	agttcgacgt	ggcaccacga	tgagaaccac	8580
ccatatagaa	cctggaacta	tcacggcagt	tatgatgtga	agccacaggg	ctccgccagt	8640
tcgctggtca	atggagtggg	caggctcctc	tcaaaaccat	gggacaccat	cacgaatgtt	8700
accaccatgg	ccatgactga	cactactccc	ttcgggcagc	agcagagtgtt	caaagagaag	8760
gtggacacga	aagctcctga	accgccagaa	ggagtgaagt	acgtgctcaa	cgagaccacc	8820

aactggttgt	gggcgttttt	ggccagagaa	aaacgtccca	gaatgtgctc	tcgagaggaa	8880
ttcataagaa	aggtcaacag	caatgcagct	ttgggtgcca	tgtttgaaga	gcagaatcaa	8940
tggaggagcg	ccagagaggc	agttgaagat	ccaaaatttt	gggagatggt	ggatgaggag	9000
cgcgaggcac	atctgcgggg	ggaatgtcac	acttgcattt	acaacatgat	gggaaagaga	9060
gagaaaaaac	ccggagagtt	cggaaaggcc	aagggaagca	gagccatttg	gttcatgttg	9120
ctcggagctc	gctttctgga	gttcgaggct	ctgggttttc	tcaatgaaga	ccactggctt	9180
ggaagaaaga	actcaggagg	aggtgtcgag	ggcttgggcc	tccaaaaact	gggttacatc	9240
ctgctgaag	ttggcaccgc	gcctgggggc	aagatctatg	ctgatgacac	agctggctgg	9300
gacaccgcga	tcacgagagc	tgacttgga	aatgaagcta	aggtgcttga	gctgcttgat	9360
ggggaacatc	ggcgtcttgc	cagggccatc	attgagctca	cctatcgtca	caaagttgtg	9420
aaagtgatgc	gcccggctgc	tgatggaaga	accgtcatgg	atgttatctc	cagagaagat	9480
cagaggggga	tgggacaagt	tgtcacctac	gccctaaaca	ctttcaccaa	cctggccgtc	9540
cagctggtga	ggatgatgga	aggggaagga	gtgattggcc	cagatgatgt	ggagaaactc	9600
acaaaaggga	aaggacccaa	agtcaggacc	tggctgtttg	agaatgggga	agaaagactc	9660
agccgcatgg	ctgtcagtgg	agatgactgt	gtggtaaagc	ccctggacga	tcgctttgcc	9720
acctcgctcc	acttcctcaa	tgctatgtca	aaggttcgca	aagacatcca	agagtggaaa	9780
ccgtcaactg	gatggtatga	ttggcagcag	gttccatttt	gctcaaacca	tttactgaa	9840
ttgatcatga	aagatggaag	aacactgggtg	gttccatgcc	gaggacagga	tgaattggta	9900
ggcagagctc	gcatactctc	aggggcccga	tggaacgtcc	gcgacactgc	ttgtctgggt	9960
aagtccttatg	cccagatgtg	gctgcttctg	tacttcaca	gaagagacct	gcggctcatg	10020
gccaacgccca	tttgctccgc	tgctccctgtg	aattgggtcc	ctaccggaag	aaccacgtgg	10080
tccatccatg	caggaggaga	gtggatgaca	acagaggaca	tggtggaggt	ctggaaccgt	10140
gtttggatag	aggagaatga	atggatggaa	gacaaaacc	cagtggagaa	atggagtga	10200
gtcccatatt	caggaaaacg	agaggacatc	tggtgtggca	gcctgattgg	cacaagagcc	10260
cgagccacgt	gggcagaaaa	catccagggtg	gctatcaacc	aagtcagagc	aatcatcgga	10320
gatgagaagt	atgtggatta	catgagttca	ctaaagagat	atgaagacac	aactttgggt	10380
gaggacacag	tactgtagat	atttaataca	ttgtaaatag	acaatataag	tatgcataaa	10440
agtgtagttt	tatagtagta	tttagtggtg	ttagtgtaaa	tagttaagaa	aattttgagg	10500
agaaagtccag	gcccgggaagt	tcccgcacc	ggaagttag	tagacggtgc	tgccctgcgac	10560
tcaaccccag	gaggactggg	tgaacaaagc	cgcgaaagtg	tccatgtaag	ccctcagaac	10620
cgtctcgga	ggaggacccc	acatgttgta	acttcaaagc	ccaatgtcag	accacgctac	10680
ggcgtgctac	tctgcggaga	gtgcagctctg	cgatagtgcc	ccaggaggac	tgggttaaca	10740
aaggcaaacc	aacgccccac	gcggccctag	ccccggtaat	ggcgtaacc	agggcgaaag	10800
gactagaggt	tagaggagac	cccgcggttt	aaagtgcacg	gcccagcctg	gctgaagctg	10860
taggtcaggg	gaaggactag	aggttagtggtg	agaccccggtg	ccacaaaaca	ccacaacaaa	10920
acagcatatt	gacacctggg	atagactagg	agatcttctg	ctctgcacaa	ccagccacac	10980
ggcacagtgc	gccgacaatg	gtggctggtg	gtgcgagaac	acaggatct		11029

&lt;210&gt; 3

&lt;211&gt; 10735

&lt;212&gt; DNA

&lt;213&gt; Dengue virus type 1

&lt;400&gt; 3

agttgttagt	ctacgtggac	cgacaagaac	agtttcgaat	cggaagcttg	cttaacgtag	60
ttctaacagt	tttttattag	agagcagatc	tctgatgaac	aaccaacgga	aaaagacggg	120
tcgacgctct	ttcaatatgc	tgaaacgcgc	gagaaaccgc	gtgtcaactg	tttcacagtt	180
ggcgaagaga	ttctcaaaag	gattgctttc	aggccaagga	cccatgaaat	tggtgatggc	240
ttttatagca	ttcctaagat	ttctagccat	acctccaaca	gcaggaattt	tggctagatg	300
gggctcattc	aagaagaatg	gagcgatcaa	agtgttacgg	ggtttcaaga	aagaaatctc	360
aaacatgttg	aacataatga	acaggaggaa	aagatctgtg	accatgctcc	tcatgctgct	420
gcccacagcc	ctggcggttc	atctgaccac	ccgaggggga	gagccgcaca	tgatagttag	480
caagcaggaa	agaggaaaat	cacttttgtt	taagacctct	gcaggtgtca	acatgtgcac	540



```

ccttattgca atggatttgg gagagttagt tgaggacaca atgacctaca aatgcccccg 600
gatcactgag acggaaccag atgacgttga ctgttggtgc aatgccacgg agacatgggt 660
gacctatgga acatgttctc aaactggtga acaccgacga gacaaacgtt ccgtcgact 720
ggcaccacac gtagggcttg gtctagaaac aagaaccgaa acgtggatgt cctctgaagg 780
cgcttggaac caaatacaaa aagtggagac ctgggctctg agacaccag gattcacgg 840
gatagccctt tttctagcac atgccatagg aacatccatc accagaaaag ggatcatttt 900
tattttgctg atgctggtaa ctccatccat ggccatgcgg tgcgtgggaa taggcaacag 960
agacttcgtg gaaggactgt caggagctac gtgggtggat gtggtactgg agcatggaag 1020
ttgcgtcact accatggcaa aagacaaacc aacactggac attgaactct tgaagacgga 1080
ggtcacaaac cctgccgtcc tgcgcaaact gtgcattgaa gctaaaatat caaacaccac 1140
caccgattcg agatgtccaa cacaaggaga agccacgctg gtggaagaac aggacacgaa 1200
ctttgtgtgt cgacgaacgt tcgtggacag aggtctgggc aatggttgtg ggctattcgg 1260
aaaaggtagc ttaataacgt gtgctaagtt taagtgtgtg acaaaactgg aaggaaagat 1320
agtccaatat gaaaacttaa aatattcagt gatagtcacc gtacacactg gagaccagca 1380
ccaagttgga aatgagacca cagaacatgg aacaactgca accataacac ctcaagctcc 1440
cacgtcgga atacagctga cagactacgg agctctaaca ttggattgtt cacctagaac 1500
agggctagac tttaatgaga tgggtgtgtt gacaatggaa aaaaaatcat ggctcgtcca 1560
caaacaatgg tttctagact taccactgcc ttggacctcg ggggcttcaa catcccaaga 1620
gacttggaat agacaagact tgctggtcac atttaagaca gctcatgcaa aaaagcagga 1680
agtagtcgta ctaggatcac aagaaggagc aatgcacact gcgttgactg gagcgacaga 1740
aatccaaacg tctggaacga caacaatttt tgcaggacac ctgaaatgca gactaaaaat 1800
ggataaactg actttaaaag ggatgtcata tgtaatgtgc acaggggtcat tcaagttaga 1860
gaaggaagtg gctgagaccc agcatggaac tgttctagtg caggttaaat acgaaggaa 1920
agatgcacca tgcaagatcc ctttctcgtc ccaagatgag aagggagtaa ccagaatgg 1980
gagattgata acagccaacc ccatagtcac tgacaaagaa aaaccagtca acattgaagc 2040
ggagccacct tttggtgaga gctacattgt ggtaggagca ggtgaaaaag ctttgaaact 2100
aagctgggtc aagaagggaa gcagtatagg gaaaatgttt gaagcaactg cccgtggagc 2160
acgaaggatg gccatccttg gagacactgc atgggacttc ggttctatag gaggggtgtt 2220
cacgtctgtg ggaaaactga tacaccagat ttttgggact gcgtatggag tttgttcag 2280
cggtgtttct tggaccatga agataggaat agggattctg ctgacatggc taggattaaa 2340
ctcaaggagc acgtcccttt caatgacgtg tatcgcagtt ggcattgtca cgctgtacct 2400
aggagtcact gttcaggcgg actcgggatg tgtaatcaac tggaaaggca gagaactcaa 2460
atgtggaagc ggcattttttg tcaccaatga agtccacacc tggacagagc aatataaatt 2520
ccaggccgac tcccctaaga gactatcagc ggccattggg aaggcatggg aggaggggtg 2580
gtgtggaatt cgatcagcca ctctctcga gaacatcatg tggaagcaaa tatcaaata 2640
attaaccac atcttacttg aaaatgacat gaaatttaca gtggtcgtag gagacgttag 2700
tggaatcttg gcccaaggaa agaaaatgat taggccacaa cccatggaac acaaatctc 2760
gtggaaaagc tggggaaaag ccaaaatcat aggaagacat gtacagaata ccaccttc 2820
catcgacggc ccaaacacc cagaatgccc tgataaccac agagcatgga acatttgga 2880
agttgaagac tatggatttg gaattttcac gacaaacata tggttgaaat tgcgtgactc 2940
ctacactcaa gtgtgtgacc accggcta atgtcagtgcc atcaaggata gcaagcagt 3000
ccatgctgac atggggtact ggatagaaag tgaaaagaac gagacttgg agttggcaag 3060
agctccttc atagaagtta agacatgcat ctggccaaaa tcccacactc tatggagcaa 3120
tggagtcttg gaaagtgaga tgataatccc aaagatatat ggaggaccaa tatctcagca 3180
caactacaga ccaggatatt tcacacaaac agcagggccg tggcacttgg gcaagttaga 3240
actagatttt gatttatgtg aaggtaccac tgttgttgtg gatgaacatt gtggaaatcg 3300
aggaccatct cttagaacca caacagtcac aggaaagaca atccatgaat ggtgctgtag 3360
atcttgacg ttaccccc tacgtttcaa aggagaagac ggggtgctgg acggcatgga 3420
aatcagacca gtcaggaga aggaagagaa cctagttaag tcaatggctc ctgcagggtc 3480
aggagaagt gacagttttt cactaggact gctatgcata tcaataatga tcgaagagg 3540
aatgagatcc agatggagca gaaaaatgct gatgactgga acattggctg tgttccctc 3600
tctcacaat ggacaattga catggaatga tctgatcagg ctatgtatca tggttggagc 3660
caacgcttca gacaagatgg ggatgggaac aacgtaccta gctttgatgg ccactttcag 3720
aatgagacca atgttcgcag tcgggctact gtttcgcaga ttaacatcta gagaagttct 3780

```

tcttctttaca	ggttgattga	gtctggtggc	atctgtagaa	ctaccaaatt	ccttagagga	3840
gctaggggat	ggacttgcaa	tgggcatcat	gatgttgaaa	ttactgactg	atcttcagtc	3900
acatcagcta	tggtgtacct	tgtgtctttt	aacatttgct	aaaacaactt	tttcattgca	3960
ctatgcatgg	aagacaatgg	ctatgatact	gtcaattgta	tctctcttcc	ctttatgcct	4020
gtccacgact	tctcaaaaaa	caacatggct	tccggtgttg	ctgggatctc	ttggatgcaa	4080
accactaacc	atgtttctta	taacagaaaa	caaaatctgg	ggaaggaaaa	gctggcctct	4140
caatgaagga	attatggctg	ttggaatagt	tagcattctt	ctaagttcac	ttctcaagaa	4200
tgatgtgcca	ctagctggcc	cactaatagc	tggaggcatg	ctaatagcac	gttatgtcat	4260
atctggaagc	tcgcccgatt	tatcactgga	gaaagcggct	gaggtctcct	gggaagaaga	4320
agcagaacac	tctggtgcct	cacacaacat	actagtggag	gtccaagatg	atggaacct	4380
gaagataaag	gatgaagaga	gagatgacac	actcaccatt	ctcctcaaag	caactctgct	4440
agcaatctca	gggttatacc	caatgtcaat	accggcgacc	ctcttttgtg	ggtatttttg	4500
gcagaaaaag	aaacagagat	caggagtgtc	atgggacaca	cccagccctc	cagaagtggg	4560
aagagcagtc	cttgatgatg	gcatttatag	aatttctcaa	agaggattgt	tgggcaggtc	4620
tcaagtagga	gtaggagttt	ttcaagaagg	cgtgttccac	acaatgtggc	acgtcaccag	4680
gggagctgtc	ctcatgtacc	aagggaagag	actggaacca	agttgggcca	gtgtcaaaaa	4740
agacttgatc	tcatatggag	gaggttggag	gtttcaagga	tcctggaacg	cgggagaaga	4800
agtgcagggtg	attgctgttg	aaccggggaa	gaaccccaaa	aatgtacaga	cagcgccggg	4860
taccttcaag	acccctgaag	gcgaagtgtg	agccatagct	ctagacttta	aaccgggac	4920
atctggatct	cctatcgtga	acagagaggg	aaaaatagta	ggtctttatg	gaaatggag	4980
ggtgacaaca	agtgtacct	acgtcagcgc	catagctcaa	gctaaagcat	cacaagagg	5040
gcctctacca	gagattgagg	acgaggtgtt	taggaaaaga	aacttaacaa	taatggacct	5100
acatccagga	tcggggaaaa	caagaagata	tcttccagcc	atagtcctg	aggccataag	5160
aaggaacgtg	cgcacgctag	tcttagctcc	cacaagagtt	gtcgcttctg	aaatggcaga	5220
ggcgctcaag	ggaatgcca	taaggtatca	gacaacagca	gtgaagagtg	aacacacagg	5280
aaaagagata	gttgacctta	tgtgtcacgc	cactttcact	atgctgtctc	tgtctcctgt	5340
gagagttccc	aattataata	tgattatcat	ggatgaagca	cattttaccg	atccagccag	5400
catagcagcc	agaggggtata	tctcaaccgc	agtgggtatg	ggtgaagcag	ctgctgattt	5460
catgacagcc	actccccccg	gatcgggtga	ggcctttcca	cagagcaatg	cagttatcca	5520
agatgaggaa	agagacattc	ctgaaagatc	atggaaactca	ggctatgact	ggatcactga	5580
tttcccaggt	aaaacagtct	ggtttgttcc	aagcatcaaa	tcaggaaatg	acattgcca	5640
ctgttttaaga	aagaatggga	aacgggtggt	ccaattgagc	agaaaaactt	ttgacactga	5700
gtaccagaaa	acaaaaaata	acgactggga	ctatgttgct	acaacagaca	tatccgaaat	5760
gggagcaaac	ttccgagccg	acagggtaat	agacccgagg	cgggtgcctga	aaccggtaat	5820
actaaaagat	ggcccagagc	gtgtcattct	agccggaccg	atgccagtga	ctgtggctag	5880
cgccgcccag	aggagaggaa	gaattggaag	gaacccaaat	aagggaaggcg	atcagtatat	5940
ttacatggga	cagcctctaa	acaatgatga	ggaccacgcc	cattggacag	aagcaaaaat	6000
gctccttgac	aacataaaca	caccagaagg	gattatccca	gccctctttg	agccggagag	6060
agaaaagagt	gcagcaatag	acggggaata	cagactacgg	ggtgaagcga	ggaaaacgtt	6120
cgtaggagctc	atgagaagag	gagatctacc	tgtctggcta	tcctacaaag	ttgcctcaga	6180
aggcttccag	tactccgaca	gaaggtggtg	ctttgatggg	gaaaggaaca	accaggtgtt	6240
ggaggagaac	atggacgtgg	agatctggac	aaaagaagga	gaaagaaaga	aactacgacc	6300
ccgctggctg	gatgccagaa	catactctga	cccactggct	ctgcgcgaat	tcaaagagtt	6360
cgcagcagga	agaagaagcg	tctcaggtga	cctaataatta	gaaatagggg	aacttccaca	6420
acatttaacg	caaagggccc	agaacgcctt	ggacaatctg	gttatgttgc	acaactctga	6480
acaaggagga	aaagcctata	gacacgccat	ggaagaacta	ccagacacca	tagaaacgtt	6540
aatgctccta	gctttgatag	ctgtgctgac	tgggtggagt	acgttggtct	tcctatcagg	6600
aaggggtcta	ggaaaaacat	ccattggcct	actctgcgtg	attgcctcaa	gcgcactgct	6660
atggatggcc	agtgtggaac	cccattggat	agcggcctct	atcatactgg	agttctttct	6720
gatgggtgtg	cttattccag	agccggacag	acagcgcact	ccacaagaca	accagctagc	6780
atacgtgggtg	ataggtctgt	tattcatgat	attgacagcg	gcagccaatg	agatgggatt	6840
actggaaacc	acaaagaagg	acctggggat	tggctcatgca	gctgctgaaa	accaccatca	6900
tgctgcaatg	ctggacgtag	acctacatcc	agcttcagcc	tggactctct	atgcagtggc	6960
cacaacaatt	atcactccca	tgatgagaca	cacaattgaa	aacacaacgg	caaatatttc	7020

cctgacagct	attgcaaacc	aggcagctat	attgatggga	cttgacaagg	gatggccaat	7080
atcaaagatg	gacataggag	ttccacttct	cgccttgggg	tgctattctc	aggtgaaccc	7140
getgacgctg	acagcggcgg	tatttatgct	agtggctcat	tatgccataa	ttggaccggg	7200
actgcaagca	aaagctacta	gagaagctca	aaaaaggaca	gcagccggaa	taatgaaaaa	7260
cccaactgtc	gacgggatcg	ttgcaataga	tttggaccct	gtggtttacg	atgcaaaatt	7320
tgaaaaacag	ctaggccaaa	taatgtttgt	gatactttgc	acatcacaga	tcctcctgat	7380
gcggaccaca	tgggccttgt	gtgaatccat	cacactagcc	actggacctc	tgactacgct	7440
ttggggaggg	tctccaggaa	aattctggaa	caccacgata	gcggtgtcca	tggcaaacat	7500
tttttagggg	agttatctag	caggagcagg	tctggccttt	tcattaatga	aatctctagg	7560
aggaggtagg	agaggcacgg	gagcccaagg	ggaaacactg	ggagaaaaat	ggaaaagaca	7620
gctaaaccaa	ttgagcaagt	cagaattcaa	cacttacaaa	aggagtggga	ttatagaggt	7680
ggatagatct	gaagccaaa	aggggttaaa	aagaggagaa	ccgactaaac	acgcagtgtc	7740
ggagggaaac	gccaaactga	ggtggtttgt	ggagaggaa	cttgtgaaac	cagaagggaa	7800
agtcatagac	ctcggtttgt	gaagaggtgg	ctggctcatat	tattgcgctg	ggctgaagaa	7860
agtcacagaa	gtgaaaggat	acacgaaagg	aggacctgga	catgaggaa	caatcccaat	7920
ggcaacctat	ggatggaacc	tagtaaagct	atactccggg	aaagatgtat	tctttacacc	7980
acctgagaaa	tgtgacaccc	tcttgtgtga	tattggtgag	tcctctccga	acccaactat	8040
agaagaagga	agaacgttac	gtgttctaaa	gatggtggaa	ccatggctca	gaggaaaacca	8100
attttgcata	aaaattctaa	atccctatat	gccgagtgtg	gtagaaactt	tggagcaaat	8160
gcaaagaaaa	catggaggaa	tgctagtgcg	aaatccactc	tcaagaaact	ccactcatga	8220
aatgtactgg	gtttcatgtg	gaacaggaaa	cattgtgtca	gcagtaaaca	tgacatctga	8280
aatgttgcta	aatcgattca	caatggctca	caggaaagcca	acatatgaaa	gagacgtgga	8340
cttaggcgct	ggaacaagac	atgtggcagt	agaaccagag	gtggccaacc	tagatatcat	8400
tgccagagg	atagagaata	taaaaaatgg	acacaaatca	acatggcact	atgatgagga	8460
caatccatac	aaaacatggg	cctatcatgg	atcatatgag	gtcaagccat	caggatcagc	8520
ctcatccatg	gtcaatggtg	tgggtgagact	gctaaccaaa	ccatgggatg	tcattcccat	8580
ggtcacacaa	atagccatga	ctgacaccac	accctttgga	caacagaggg	tgtttaaaga	8640
gaaagttgac	acgcgtacac	caaaagcgaa	acgaggcaca	gcacaaatta	tggaggtgac	8700
agccaggtgg	ttatgggggt	ttctctctag	aaacaaaaaa	cccagaatct	gcacaagaga	8760
ggagttcaca	agaaaagtca	ggtcaaacgc	agctattgga	gcagtgttcg	ttgatgaaaa	8820
tcaatggaa	tcagcaaaag	aggcagtgga	agatgaacgg	ttctgggacc	ttgtgcacag	8880
agagagggag	cttcataaac	aaggaaaatg	tgccacgtgt	gtctacaaca	tgatgggaaa	8940
gagagagaaa	aaattaggag	agttcggaaa	ggcaaaagga	agtcgcgcaa	tatggtacat	9000
gtggttggga	gcgcgctttt	tagagtttga	agcccttggg	ttcatgaatg	aagatcactg	9060
gttcagcaga	gagaattcac	tcagtggagt	ggaaggagaa	ggactccaca	aacttggata	9120
catactcaga	gacatatcaa	agattccagg	gggaaatatg	tatgcagatg	acacagccgg	9180
atgggacaca	agaataacag	aggatgatct	tcagaatgag	gccaaaatca	ctgacatcat	9240
ggaacctgaa	catgccctat	tggccacgtc	aatctttaag	ctaacctacc	aaaacaaggt	9300
agtaagggtg	cagagaccag	cgaaaaatgg	aaccgtgatg	gatgtcatat	ccagacgtga	9360
ccagagagga	agtggacagg	ttggaacctt	tggcttaaac	accttcacca	acatggaggc	9420
ccaactaata	agacaaatgg	agtctgaggg	aatcttttca	cccagcgaat	tggaaacccc	9480
aaatctagcc	gaaagagtc	tcgactgggt	gaaaaaacat	ggcaccgaga	ggctgaaaag	9540
aatggcaatc	agtggagatg	actgtgtggt	gaaaccaatc	gatgacagat	ttgcaacagc	9600
cttaacagct	ttgaatgaca	tgggaaaggt	aagaaaagac	ataccgcaat	gggaaccttc	9660
aaaaggatgg	aatgattggc	aacaagtgcc	tttctgttca	caccatttcc	accagctgat	9720
tatgaaggat	gggagggaga	tagtggtgcc	atgccgcaac	caagatgaac	ttgtaggtag	9780
ggccagagta	tcacaaggcg	ccggtggag	cttgagagaa	actgcatgcc	taggcaagtc	9840
atatgcacaa	atgtggcagc	tgatgtactt	ccacaggaga	gacttgagat	tagcggctaa	9900
tgctatctgt	tcagccgttc	cagttgattg	ggtcccaacc	agccgtacca	cctgggtcgat	9960
ccatgcccc	catcaatgga	tgacaacaga	agacatgttg	tcagtgtgga	atagggtttg	10020
gatagaggaa	aacctcatgga	tggaggacaa	gactcatgtg	tccagttggg	aagacgttcc	10080
atacctagga	aaaagggaag	atcgatgggt	tggatcccta	ataggcttaa	cagcacgagc	10140
cacctggggc	accaacatac	aagtggccat	aaaccaagtg	agaaggctca	ttgggaatga	10200
gaattatcta	gacttcatga	catcaatgaa	gagattcaaa	aacgagagtg	atccccgaag	10260

```

ggcactctgg taagccaact cattcacaaa ataaaggaaa ataaaaaatc aaacaaggca 10320
agaagtcagg ccggtattaag ccatagcacg gtaagagcta tgctgcctgt gagccccgtc 10380
caaggacgta aaatgaagtc aggccgaaag ccacggttcg agcaagccgt gctgcctgta 10440
gctccatcgt ggggatgtaa aaacccggga ggctgcaaac catggaagct gtacgcatgg 10500
ggtagcagac tagtggttag aggagacccc tccaagaca caacgcagca gcggggccca 10560
acaccagggg aagctgtacc ctggtggtaa ggactagagg ttagaggaga cccccgcac 10620
aacaacaaac agcatattga cgctgggaga gaccagagat cctgctgtct ctacagcatc 10680
attccaggca cagaacgcc aaaaatggaa tggtgctgtt gaatcaacag gttct 10735

```

<210> 4

<211> 10724

<212> DNA

<213> Dengue virus type 2

<400> 4

```

agttgttagt ctacgtggac cgacaaagac agattctttg agggagctaa gctcaacgta 60
gttctaacag ttttttaatt agagagcaga tctctgatga ataaccaacg aaaaaaggcg 120
agaaataccc ctttcaatat gctgaaacgc gagagaaacc gcgtgtcgac tgtacaacag 180
ctgacaaaga gattctcact tggaatgctg cagggacgag gaccattaaa actgttcatg 240
gccctgggtg cgttccttcg tttcctaaca atcccaccaa cagcagggat actgaagaga 300
tggggaacaa ttaaaaaatc aaaagccatt aatgttttga gaggggttcag gaaagagatt 360
ggaaggatgc tgaacatctt gaacaggaga cgcagaactg caggcatgat cattatgctg 420
attccaacag tgatggcggt ccatttaacc acacgtaacg gagaaccaca catgatcgctc 480
agtagacaag agaaagggaa aagtcttctg tttaaaacag aggatgggtg gaacatgtgt 540
accctcatgg ccatggacct tggtgaattg tgtgaagata caatcacgta caagtgtcct 600
tttctcaggc agaatgaacc agaagacata gattgtttgt gcaactctac gtccacatgg 660
gtaacttatg ggacgtgtac caccacagga gaacacagaa gagaaaaaag atcagtggca 720
ctcgttccac atgtgggaat gggactggag acacgaactg aaacatggat gtcacagaa 780
ggggcctgga aacatgccca gagaattgaa acctggatct tgagacatcc aggctttacc 840
ataatggcag caatcctggc atacaccata ggaacgacac atttccaaag agccttgatt 900
ttcatcttac tgacagctgt cgctccttca atgacaatgc gttgcatagg aatatcaaat 960
agagactttg tagaaggggt ttcaggagga agctgggttg acatagtctt agaacatgga 1020
agctgtgtga cgacgatggc aaaaaacaaa ccaacattgg attttgaact gataaaaaaca 1080
gaagccaaac aacctgccac tctaaggaa g tactgtatag aggcaaagct gaccaacaca 1140
acaacagatt ctcgctgccc aacacaagga gaaccagcc taaatgaaga gcaggacaaa 1200
aggttcgtct gcaaacactc catggtggac agaggatggg gaaatggatg tggattatatt 1260
ggaaaaggag gcattgtgac ctgtgctatg ttcacatgca aaaagaacat gaaaggaaaa 1320
gtcgtgcaac cagaaaactt ggaatacacc attgtgataa cacctcactc aggggaagag 1380
catgcagtcg gaaatgacac aggaaaacat ggcaaggaaa tcaaaataac accacagagt 1440
tccatcacag aagcagagtt gacaggctat ggcactgtca cgatggagtg ctctccgaga 1500
acgggcctcg acttcaatga gatggtgttg ctgcaaatgg aaaataaagc ttggctgggtg 1560
cacaggcaat gggttcctaga cctgccgttg ccatggctgc ccggagcggg cacacaagga 1620
tcaaattgga tacagaaaga gacattgggtc actttcaaaa atccccatgc gaagaaacag 1680
gatgttgttg ttttgggata ccaagaaggg gccatgcaca cagcactcac agggggccaca 1740
gaaatccaga tgtcatcagg aaacttactg ttcacaggac atctcaagtg caggctgagg 1800
atggacaaaac tacagctcaa aggaatgtca tactctatgt gcacaggaaa gtttaaagtt 1860
gtgaaggaaa tagcagaaac acaacatgga acaatagtta tcagagtaca atatgaaggg 1920
gacggttctc catgtaagat cccttttgag ataatggatt tggaaaaaag acatgtttta 1980
ggtcgcctga ttacagtcaa cccaatcgta acagaaaaag atagcccagt caacatagaa 2040
gcagaacctc cattcggaga cagctacatc atcataggag tagagccggg acaattgaag 2100
ctcaactggt ttaagaaagg aagttctatc ggccaaatga ttgagacaac aatgagggga 2160
gcgaagagaa tggccatttt aggtgacaca gcttgggatt ttggatccct gggaggagtg 2220
tttacatcta taggaaaggc tctccaccaa gttttcggag caatctatgg ggctgccttc 2280

```

agtgggggtct	catggactat	gaaaatactc	ataggagtca	ttatcacatg	gataggaatg	2340
aattcacgca	gcacctcact	gtctgtgtca	ctagtattgg	tgggagtcgt	gacgctgtat	2400
ttgggagtta	tgggtgcaggc	cgatagtggg	tgcgttgtga	gctggaaaaa	caaagaactg	2460
aagtgtggca	gtgggatttt	catcacagac	aacgtgcaca	catggacaga	acaatacaag	2520
ttccaaccag	aatccccctt	aaagctagct	tcagctatcc	agaaagctca	tgaagagggc	2580
atgtgtggaa	tccgctcagt	aacaagactg	gaaaatctga	tgtggaaaca	aataacacca	2640
gaattgaatc	acattctatc	agaaaatgag	gtgaagttag	ctattatgac	aggagacatc	2700
aaaggaatca	tgcaggcagg	aaaacgatct	ctgcagcccc	agcccactga	gctgaagtat	2760
tcatggaaaa	catgggggcaa	agcgaatatg	ctctctacag	agtctcataa	ccagaccttt	2820
ctcattgatg	gccccgaaac	agcagaatgc	cccaacacaa	acagagcttg	gaattcgcgtg	2880
gaagttgaag	actatggctt	tggagtattc	accaccaata	tatggctaaa	gttgagagaa	2940
aagcaggatg	tattctgcga	ctcaaaactc	atgtcagcgg	ccataaaaaga	caacagagcc	3000
gtccatgccg	atatgggtta	ttggatagaa	agtgcactca	atgacacatg	gaagatagag	3060
aaagcctctt	tcatcgaagt	taaaagctgc	cactggccaa	agtcacacac	cctctggagt	3120
aatggagtgt	tagaaagtga	gatgataatt	ccaaagaatt	tcgctggacc	agtgtcacia	3180
cacaactaca	gaccaggcta	ccatacacia	acagcaggac	catggcatct	aggtaagctt	3240
gagatggact	ttgattttctg	cgaaggaacc	acagtgggtg	tgactgagga	ctgtggaaat	3300
agaggaccct	ctttaagaac	aactactgcc	tctggaaaac	tcataacaga	atggtgctgc	3360
cgatcttgca	cattaccacc	gctaagatac	agaggtgagg	acggatgctg	gtacgggag	3420
gaaatcgagc	cattgaaaga	gaaagaagag	aatttgggtc	actccttggg	cacagccgga	3480
catgggcaga	ttgacaactt	ttcactagga	gtcttgggaa	tggcattgtt	cctggaagaa	3540
atgctcagga	cccagtagg	aacgaaacat	gcaatactac	tagttgcagt	ttcttttgtg	3600
acattgatca	cagggaacat	gtcctttaga	gacctgggaa	gagtgatggt	tatggtgggc	3660
gctactatga	cggatgacat	aggtatgggc	gtgacttatc	ttgccctact	agcagccttc	3720
aaagtcagac	caacttttgc	agctggacta	ctcttgagaa	agttgacctc	caaggaattg	3780
atgatgacta	ccataggaat	cgtactcctc	tcccagagca	ccataccaga	gaccattctt	3840
gaactgactg	atgcgtttagc	cttggggcatg	atggtcctta	aaatgggtgag	aaaaatggaa	3900
aagtatcaat	tggcagtgac	tatcatggct	atcttgtgcg	tcccaaatgc	agtgatatta	3960
caaaacgcac	ggaaagttag	ttgcacaata	ttggcagtg	tgtccgtttc	cccactgttc	4020
ttaacatcct	cacagcagaa	agcggattgg	ataccattag	cattgacgat	caaggggtctc	4080
aatccaacag	ctattttttct	aacaaccctt	tcaagaacca	acaagaaaag	gagctggcca	4140
ctaaatgagg	ctatcatggc	agtcgggatg	gtgagcattt	tggccagttc	actcctaaag	4200
aatgacattc	ccatgacagg	accatttagt	gctggagggc	tcctcactgt	gtgctacgtg	4260
ctcactggac	gatcgccga	tttggaaactg	gagagagccg	ccgatgtcaa	atgggaagat	4320
caggcagaga	tatcaggaag	cagtccaatc	ctgtcaataa	caatatcaga	agatggtagc	4380
atgtcgataa	aaaacgaaga	ggaagaacaa	acactgacca	tactcattag	aacaggattg	4440
ctggtgatct	caggactttt	tcctgtatca	ataccaatca	cggcagcagc	atggtacctg	4500
tgggaagtga	agaaacaacg	ggctggagta	ttgtgggatg	tcccttcacc	cccaccgtg	4560
ggaaaggctg	aactggaaga	tggagcctat	agaatcaagc	aaaaagggat	tcttggatat	4620
tcccagatcg	gagccggagt	ttacaaagaa	ggaacattcc	atacaatgtg	gcatgtcaca	4680
cgcggcgctg	ttctaattgca	taaaggaaag	aggattgaac	catcatgggc	ggacgttaag	4740
aaagacctaa	tatcatatgg	aggaggctgg	aagctagaag	gagaatggaa	ggaaggagaa	4800
gaagtccagg	tcttggcatt	ggagcctgga	aaaaatccaa	gagccgtcca	aacaaaacct	4860
ggtcttttca	aaaccaacgc	cggaaaccata	ggtgccgtat	ctctggactt	ttctcctgga	4920
acctcaggat	ctccaatcat	cgacaaaaaa	ggaaaagttg	tgggtcttta	tggtaatggt	4980
gttggttaca	ggagtggagc	atatgtgagt	gctatagccc	agactgaaaa	aagtattgaa	5040
gacaattccag	agatcgaaga	tgatattttt	cgaagagaaa	aattgacctc	catggacctc	5100
caccacggag	cgggaaagac	gaagagatac	cttccggcca	tagtcagaga	ggctataaaa	5160
cggggcctga	ggacattaat	cctggccccc	actagagtcg	tggcagctga	aatggaggaa	5220
gccctaagag	gacttccaat	aagataccaa	accccagcca	tcagagctga	gcacaccggg	5280
cgggagattg	tggacctaat	gtgtcatgcc	acattcacta	tgaggctgct	atcaccagtt	5340
agagtgccaa	attacaacct	gatcatcatg	gacgaagccc	atttcacaga	cccagcaagt	5400
atagcggcta	gaggatacat	ctcaactcga	gtagagatgg	gtgaggcagc	tgggattttc	5460
atgacagcca	ctcctccggg	aagcagagac	ccattccctc	agagcaatgc	accaatcatg	5520

gatgaagaaa	gagaaatccc	tgaacgttcg	tggagttctg	gacatgagtg	ggtcacggat	5580
tttaaaggga	agactgtttg	gttcgttcca	agtataaaaag	caggaaatga	tatagcagct	5640
tgccctgagaa	aaaatggaaa	gaaagtgata	caactcagta	ggaagacctt	tgattctgag	5700
tatgtcaaga	ctagaaccaa	tgattgggac	ttcgtggtca	caactgacat	ttcagaaatg	5760
ggtgccaaact	tcaaggctga	gaggggttata	gaccccagac	gctgcatgaa	accagttata	5820
ctaacagatg	gtgaagagcg	ggtgatcctg	gcaggaccta	tgccagtgac	ccactctagt	5880
gcagcacaaa	gaagagggag	aataggaaga	aatccaaaaa	atgaaaatga	ccagtacata	5940
tacatggggg	aacctctgga	aatgatgaa	gactgtgcac	actggaaaga	agctaaaatg	6000
ctcctagata	acatcaacac	acctgaagga	atcattccta	gcatgttcga	accagagcgt	6060
gaaaagggtg	atgccattga	tggtgaatac	cgcttgagag	gagaagcaag	gaaaaccttt	6120
gtggacctaa	tgagaagagg	agacctacca	gtctgggttg	cctacagagt	ggcagctgaa	6180
ggcatcaact	acgcgacag	aagggtggtg	tttgatggaa	ttaagaacaa	ccaaatcttg	6240
gaagaaaatg	tggaggtgga	aatctggaca	aaagaagggg	aaaggaagaa	attaaaaccc	6300
agatggttgg	atgccaggat	ctactctgac	ccactgacgc	taaaggaatt	caaggagttt	6360
gcagctggaa	gaaagtccct	gacctgaac	ctaatacag	aaatgggtag	gcttccaact	6420
ttcatgactc	agaaggcaag	agacgcactg	gacaacttag	cagtgtctgca	cacggctgaa	6480
gcaggtggaa	gggcgtacaa	tcatgtctct	agtgaactgc	cggagaccct	ggagacattg	6540
cttttactga	cacttctggc	tacagtcaca	ggaggaatct	ttttattctt	gatgagcgga	6600
aggggtatag	ggaagatgac	cctgggaatg	tgctgcataa	tcacggctag	tattctccta	6660
tggtacgcac	aaatacagcc	acactggata	gcagcttcaa	taatactgga	gtttttcttc	6720
atagttttgc	ttattccaga	accagaaaag	cagagaacac	cccaagataa	ccaattgacc	6780
tacgtttgtca	tagccatcct	cacagtgggtg	gccgcaacca	tggcaaacga	gatgggtttc	6840
ctggaaaaaa	cgaagaaaga	tctcggattg	ggaagcatta	caaccagca	acccgagagc	6900
aacatcctgg	acatagatct	acgtcccgc	tcagcatgga	cgctgtatgc	tgtggccaca	6960
acatttgtca	caccaatggt	gagacacagc	attgaaaatt	cctcagtgaa	cgtgtcccta	7020
acagctattg	ccaaccaagc	cacagtgtta	atgggtcttg	ggaaaggatg	gccattgtca	7080
aagatggaca	tccggagttcc	ccttctcgcc	attggatgct	actcacaagt	caaccccata	7140
actctcacag	cagctctttt	cttactggta	gcacattatg	ccatcatagg	gccaggactc	7200
caagcaaaaag	caaccaggga	agctcagaaa	agagcagcag	cgggcatcat	gaaaaaccca	7260
actgtcgatg	gaataacagt	gattgaccta	gatccaatac	cctatgatcc	aaagtgtgaa	7320
aagcagttgg	gacaagtaat	gctcctagtc	ctctgcgtga	ctcaagtgtt	gatgatgagg	7380
actacatggg	ctctgtgtga	ggctttaacc	ttagcgaccg	ggcctatctc	cacattgtgg	7440
gaaggaaatc	cagggaggtt	ttggaacact	accattgcag	tgtcaatggc	taacattttt	7500
agagggagtt	acttggccgg	agctggactt	ctcttttcca	tcatgaagaa	cacaaccaac	7560
acgagaaggg	gaactggcaa	cataggagag	acgcttggag	agaaatggaa	aagccgattg	7620
aacgcattgg	ggaaaagtga	attccagatc	tacaagaaaa	gtggaatcca	ggaagtggat	7680
agaaccttag	caaaaagaag	cattaaaaga	ggagaaaacg	accatcacgc	tgtgtcgcga	7740
ggctcagcaa	aactgagatg	gttcgtcgag	agaaatatgg	tcacaccaga	agggaaagta	7800
gtggacctcg	gttgcggcag	aggaggctgg	tcatactatt	gtgggggact	aaagaatgta	7860
agagaagtca	aaggcctgac	aaaaggagga	ccaggacatg	aagaacccat	ccccatgtca	7920
acatatgggt	ggaatctagt	acgtcttcaa	agtggagttg	acgttttctt	cactccgcca	7980
gaaaagtgtg	acacattggt	gtgtgacata	ggggagtcgt	caccaaattc	cacggtagaa	8040
gcaggacgaa	cactcagagt	ccttaactta	gtggaaaatt	ggttgaacaa	caacacccaa	8100
ttttgcataa	aggttctcaa	cccatacatg	ccctcagtc	tagaaaaaat	ggaagcacta	8160
caaaggaaat	atggaggagc	cttagtgagg	aatccactct	cacgaaactc	cacacatgag	8220
atgtactggg	tatccaatgc	ctccgggaac	atagtgtcat	cagtgaacat	gatttcaagg	8280
atggtgatca	acagattcac	aatgagacac	agaaaagcca	cttacgagcc	agatgtagac	8340
ctcggaaagc	gaacccgcaa	catcggaatt	gaaagtgaga	taccaaacct	agacataatc	8400
gggaaaaagaa	tagaaaaaat	aaaacaagag	catgaaacat	catggcacta	tgaccaagac	8460
caccataaca	aaacgtgggc	ttaccatggc	agctatgaaa	caaaacaaac	tggatcagca	8520
tcatccatgg	tgaacggagt	ggtcagactg	ctgacaaaac	cttgggacgt	cgtcccatg	8580
gtgacacaga	tggcaatgac	agacacgact	ccatttgagc	aacagcgcg	ttttaagaa	8640
aaagtggaca	cgagaaccca	agaaccgaaa	gaaggcacaa	agaaactaat	gaaaatcacg	8700
gcagagtggc	tttgaaaga	actagggag	aaaaagacac	ctaggatgtg	cactagagaa	8760

gaattcacaa	gaaaggtgag	aagcaatgca	gccttggggg	ccatattcac	tgatgagaac	8820
aagtggaaagt	cggcacgtga	ggctgttgaa	gatataggt	tttgggagct	ggttgacaag	8880
gaaaggaatc	tccatcttga	aggaaaagtgt	gaaacatgtg	tgtataacat	gatgggaaaa	8940
agagagaaga	agctagggga	gttcggcaag	gcaaaaggca	gcagagccat	atggtacatg	9000
tggtctggag	cacgcttctt	agagtttgaa	gccctaggat	tcttgaatga	agatcactgg	9060
ttctccagag	agaactcctt	gagtggagtg	gaaggagaag	ggctgcacaa	gctagggttac	9120
attttaagag	acgtgagcaa	gaaagagggga	ggagcaatgt	atgccgatga	caccgcagga	9180
tgggacacaa	gaatcacact	agaagaccta	aaaaatgaag	aaatggtaac	aaaccacatg	9240
gaaggagAAC	acaagaaact	agccgaggcc	attttcaaat	taacgtacca	aaacaaggtg	9300
gtgcgtgtgc	aaagaccaac	accaagaggc	acagtaatgg	atatcatatc	gagaagagac	9360
caaagaggta	gtggacaagt	tggtacctat	ggactcaata	ctttcaccaa	tatggaagcc	9420
caactaatca	gacagatgga	gggagaagga	gtcttcaaaa	gcattcagca	cctgacagtc	9480
acagaagaaa	tcgccgtgca	aaactgggtta	gcaagagtag	ggcgcgaaag	gttatcaaga	9540
atggccatca	gtggagatga	ttgtgtttgtg	aaaccttttag	atgacagggtt	cgcaagcgct	9600
ttaacagctc	taaatgacat	gggaaagggtt	aggaaagaca	tacaacaatg	ggaaccttca	9660
agaggatgga	acgattggac	acaagtgtccc	ttctgtttcac	accattttcca	tgagttaatc	9720
atgaaagacg	gccgcgtact	tgtagtcca	tgcagaaacc	aagatgaact	gattgggtaga	9780
gcccgaattt	cccaaggagc	tgggtgggtct	ttgcgagaga	cggcctgttt	ggggaagtcc	9840
tacgcccAAA	tgtggagctt	gatgtacttc	cacagacgtg	acctcaggct	ggcggctaata	9900
gctatttgct	cggcagtcctc	atcacattgg	gttccaacaa	gtagaacaac	ctgggtccata	9960
cacgccaaac	atgaatggat	gacaacggaa	gacatgctga	cagtctggaa	caggggtgtgg	10020
attcaagaaa	acccatggat	ggaagacaaa	actccagtgg	aatcatggga	ggaaatccca	10080
tacttgggga	aaagagaaga	ccaatgggtgc	ggctcattga	ttgggctaac	aagcagggcc	10140
acctgggcaa	agaacatcca	aacagcaata	aatcaagtta	gatcccttat	aggcaatgag	10200
gaatacacag	attacatgcc	atccatgaaa	agattcagaa	gagaagagga	agaggcagga	10260
gtcctgtggt	agaaggcaaa	actaacatga	aacaaggcta	gaagtcagggt	cggattaagc	10320
tatagtacgg	aaaaaactat	gctacctgtg	agccccgtcc	aaggacgtta	aaagaagtca	10380
ggccattaca	aatgccatag	cttgagttaa	ctgtggcagc	ctgtagctcc	acctgagaag	10440
gtgtaaaaaa	tctgggaggc	cacaaaccat	ggaagctgta	cgcatggcgt	agtggactag	10500
cgggttagagg	agaccctctc	cttacaatc	gcagcaacaa	tggggggccca	aggtgagatg	10560
aagctgtagt	ctcactggaa	ggactagagg	ttagaggaga	ccccccaaa	acaaaaaaca	10620
gcatattgac	gctgggaaag	accagagatc	ctgctgtctc	ctcagcatca	ttccaggcac	10680
agaacgccag	aaaatggaat	ggtgctgttg	aatcaacagg	ttct		10724

&lt;210&gt; 5

&lt;211&gt; 519

&lt;212&gt; DNA

&lt;213&gt; West Nile virus

&lt;400&gt; 5

ttggaaggag	tgtctggagc	aacatgggtg	gatttggttc	tcgaaggcga	cagctgcgtg	60
actatcatgt	ctaaggacaa	gcctaccatc	gatgtgaaga	tgatgaatat	ggaggcggcc	120
aacctggcag	aggtccgcag	ttattgctat	ttggctaccg	tcagcgatct	ctccaccaa	180
gctgcgtgcc	cgaccatggg	agaagctcac	aatgacaaac	gtgctgaccc	agcttttgtg	240
tgcagacaag	gagtgggtgga	caggggctgg	ggcaacggct	gcggactatt	tggcaaagga	300
agcattgaca	catgcgccaa	atttgcttgc	tctaccaagg	caataggaag	aaccatcttg	360
aaagagaata	tcaagtacga	agtggccatt	tttgtccatg	gaccaactac	tgtggagtcg	420
cacggaaact	actccacaca	ggttggagcc	actcaggcag	ggagattcag	catcactcct	480
gcagcgcctt	catacacact	aaagcttgga	gaatatgga			519

<210> 6  
 <211> 171  
 <212> PRT  
 <213> West Nile virus

<400> 6  
 Leu Glu Gly Val Ser Gly Ala Thr Trp Val Asp Leu Val Leu Glu Gly  
           1                  5                  10                  15  
 Asp Ser Cys Val Thr Ile Met Ser Lys Asp Lys Pro Thr Ile Asp Val  
                   20                  25                  30  
 Lys Met Met Asn Met Glu Ala Ala Asn Leu Ala Glu Val Arg Ser Tyr  
                   35                  40                  45  
 Cys Tyr Leu Ala Thr Val Ser Asp Leu Ser Thr Lys Ala Ala Cys Pro  
           50                  55                  60  
 Thr Met Gly Glu Ala His Asn Asp Lys Arg Ala Asp Pro Ala Phe Val  
           65                  70                  75                  80  
 Cys Arg Gln Gly Val Val Asp Arg Gly Trp Gly Asn Gly Cys Gly Leu  
                   85                  90                  95  
 Phe Gly Lys Gly Ser Ile Asp Thr Cys Ala Lys Phe Ala Cys Ser Thr  
                   100                  105                  110  
 Lys Ala Ile Gly Arg Thr Ile Leu Lys Glu Asn Ile Lys Tyr Glu Val  
           115                  120                  125  
 Ala Ile Phe Val His Gly Pro Thr Thr Val Glu Ser His Gly Asn Tyr  
           130                  135                  140  
 Ser Thr Gln Val Gly Ala Thr Gln Ala Gly Arg Phe Ser Ile Thr Pro  
           145                  150                  155                  160  
 Ala Ala Pro Ser Tyr Thr Leu Lys Leu Gly Glu  
                   165                  170

<210> 7  
 <211> 2715  
 <212> DNA  
 <213> West Nile virus

<400> 7  
 ggtggggcaa aaggacgcac cttgggagag gtttggaag aaagactcaa ccagatgaca 60  
 aaagaagagt tcactaggta ccgcaaagag gccatcatcg aagtcgatcg ctcagcagca 120  
 aaacacgcca ggaaagaagg caatgtcact ggagggcatc cagtctctag gggcacagca 180  
 aaactgagat ggctgggtcga acggagggtt ctcgaaccgg tcggaaaagt gattgacctt 240  
 ggatgtggaa gaggcggttg gtgttactat atggcaacc aaaaaagagt ccaagaagtc 300  
 agaggggtaca caaagggcgg tcccggacat gaagagcccc aactagtgca aagttatgga 360  
 tggaacattg tcaccatgaa gagtggggtg gatgtgttct acagaccttc tgagtgttgt 420  
 gacaccctcc tttgtgacat cggagagtcc tcgtcaagtg ctgaggttga agagcatagg 480



```

acgattcggg tccttgaat ggttgaggac tggctgcacc gagggccaag ggaattttgc 540
gtgaagggtgc tctgccccta catgccgaaa gtcatagaga agatggagct gctccaacgc 600
cggatatggg ggggactggt cagaaaccca ctctcacgga attccacgca cgagatgtat 660
tgggtgagtc gagcttcagg caatgtggta cattcagtga atatgaccag ccaggtgctc 720
ctaggaagaa tggaaaaaag gacctggaag ggacccaat acgaggaaga tgtaaacttg 780
ggaagtggaa ccagggcggt gggaaaaccc ctgctcaact cagacaccag taaaatcaag 840
aacaggattg aacgactcag gcgtgagtac agttcgacgt ggcaccacga tgagaaccac 900
ccatatagaa cctggaacta tcacggcagt tatgatgtga agcccacagg ctccgccagt 960
tcgctggtca atggagtggg caggctcctc tcaaaacccat gggacaccat cacgaatggt 1020
accaccatgg ccatgactga cactactccc ttcgggcagc agcgagtgtt caaagagaag 1080
gtggacacga aagctcctga accgccagaa ggagtgaagt acgtgctcaa cgagaccacc 1140
aactggttgt gggcgttttt ggccagagaa aaacgtccca gaatgtgctc tcgagaggaa 1200
ttcataagaa aggtcaacag caatgcagct ttgggtgcca tgtttgaaga gcagaatcaa 1260
tggaggagcg ccagagaggc agttgaagat ccaaaatttt gggagatggt ggatgaggag 1320
cgcgaggcac atctgcgggg ggaatgtcac acttgcattt acaacatgat gggaaagaga 1380
gagaaaaaac ccggagaggt cggaaaaggcc aaggggaagca gagccatttg gttcatgtgg 1440
ctcggagctc gctttctgga gttcaggagct ctgggttttc tcaatgaaga ccactggctt 1500
ggaagaaaga actcaggagg aggtgtcgag ggcttggggc tccaaaaact gggttacatc 1560
ctgctgtaag ttggcaccgg gcctgggggc aagatctatg ctgatgacac agctggctgg 1620
gacaccgcga tcacgagagc tgacttgaa cagggccatc attgagctca cctatcgta caaagtgtg 1680
ggggaacatc ggcgtcttgc cagggccatc attgagctca cctatcgta caaagtgtg 1740
aaagtgatgc gcccggctgc tgatggaaga accgtcatgg atgttatctc cagagaagat 1800
cagaggggga gtggacaagt tgtcacctac gccctaaaca ctttcaccaa cctggccgctc 1860
cagctggtga ggatgatgga aggggaagga gtgattggcc cagatgatgt ggagaaactc 1920
acaaaaggga aaggacccaa agtcaggacc tggctgtttg agaatgggga agaaagactc 1980
agccgcatgg ctgtcagtg agatgactgt gtggtaaagc ccctggacga tcgctttgcc 2040
acctcgctcc acttcctcaa tgctatgtca aagggttcgca aagacatcca agagtggaaa 2100
ccgtcaactg gatggtatga ttggcagcag gttccatttt gctcaaacca tttactgaa 2160
ttgatcatga aagatggaag aacactgggt gttccatgcc gaggacagga tgaattggta 2220
ggcagagctc gcatatctcc aggggcccga tggaaacgtc gcgacactgc ttgtctggct 2280
aagtcttatg cccagatgtg gctgcttctg tacttcacaa gaagagacct gcggctcatg 2340
gccaacgcca tttgctccgc tgtccctgtg aattgggtcc ctaccggaag aaccacgtgg 2400
tccatccatg caggaggaga gtggatgaca acagaggaca tgttgagggt ctggaaccgt 2460
gtttggatag aggagaatga atggatggaa gacaaaaccc cagtggagaa atggagtga 2520
gtcccatatt caggaaaacg agaggacatc tgggtgtggca gcctgattgg cacaagagcc 2580
cgagccacgt gggcagaaaa catccagggt gctatcaacc aagtcagagc aatcatcgga 2640
gatgagaagt atgtggatta catgagttca ctaaagagat atgaagacac aactttgggt 2700
gaggacacag tactg 2715

```

```

<210> 8
<211> 905
<212> PRT
<213> West Nile virus

```

```

<400> 8
Gly Gly Ala Lys Gly Arg Thr Leu Gly Glu Val Trp Lys Glu Arg Leu
 1             5             10             15

Asn Gln Met Thr Lys Glu Glu Phe Thr Arg Tyr Arg Lys Glu Ala Ile
      20             25             30

Ile Glu Val Asp Arg Ser Ala Ala Lys His Ala Arg Lys Glu Gly Asn
      35             40             45

```

Val Thr Gly Gly His Pro Val Ser Arg Gly Thr Ala Lys Leu Arg Trp  
 50 55 60

Leu Val Glu Arg Arg Phe Leu Glu Pro Val Gly Lys Val Ile Asp Leu  
 65 70 75 80

Gly Cys Gly Arg Gly Gly Trp Cys Tyr Tyr Met Ala Thr Gln Lys Arg  
 85 90 95

Val Gln Glu Val Arg Gly Tyr Thr Lys Gly Gly Pro Gly His Glu Glu  
 100 105 110

Pro Gln Leu Val Gln Ser Tyr Gly Trp Asn Ile Val Thr Met Lys Ser  
 115 120 125

Gly Val Asp Val Phe Tyr Arg Pro Ser Glu Cys Cys Asp Thr Leu Leu  
 130 135 140

Cys Asp Ile Gly Glu Ser Ser Ser Ser Ala Glu Val Glu Glu His Arg  
 145 150 155 160

Thr Ile Arg Val Leu Glu Met Val Glu Asp Trp Leu His Arg Gly Pro  
 165 170 175

Arg Glu Phe Cys Val Lys Val Leu Cys Pro Tyr Met Pro Lys Val Ile  
 180 185 190

Glu Lys Met Glu Leu Leu Gln Arg Arg Tyr Gly Gly Gly Leu Val Arg  
 195 200 205

Asn Pro Leu Ser Arg Asn Ser Thr His Glu Met Tyr Trp Val Ser Arg  
 210 215 220

Ala Ser Gly Asn Val Val His Ser Val Asn Met Thr Ser Gln Val Leu  
 225 230 235 240

Leu Gly Arg Met Glu Lys Arg Thr Trp Lys Gly Pro Gln Tyr Glu Glu  
 245 250 255

Asp Val Asn Leu Gly Ser Gly Thr Arg Ala Val Gly Lys Pro Leu Leu  
 260 265 270

Asn Ser Asp Thr Ser Lys Ile Lys Asn Arg Ile Glu Arg Leu Arg Arg  
 275 280 285

Glu Tyr Ser Ser Thr Trp His His Asp Glu Asn His Pro Tyr Arg Thr  
 290 295 300

Trp Asn Tyr His Gly Ser Tyr Asp Val Lys Pro Thr Gly Ser Ala Ser  
 305 310 315 320

Ser Leu Val Asn Gly Val Val Arg Leu Leu Ser Lys Pro Trp Asp Thr  
 325 330 335

Ile Thr Asn Val Thr Thr Met Ala Met Thr Asp Thr Thr Pro Phe Gly  
 340 345 350  
 Gln Gln Arg Val Phe Lys Glu Lys Val Asp Thr Lys Ala Pro Glu Pro  
 355 360 365  
 Pro Glu Gly Val Lys Tyr Val Leu Asn Glu Thr Thr Asn Trp Leu Trp  
 370 375 380  
 Ala Phe Leu Ala Arg Glu Lys Arg Pro Arg Met Cys Ser Arg Glu Glu  
 385 390 395 400  
 Phe Ile Arg Lys Val Asn Ser Asn Ala Ala Leu Gly Ala Met Phe Glu  
 405 410 415  
 Glu Gln Asn Gln Trp Arg Ser Ala Arg Glu Ala Val Glu Asp Pro Lys  
 420 425 430  
 Phe Trp Glu Met Val Asp Glu Glu Arg Glu Ala His Leu Arg Gly Glu  
 435 440 445  
 Cys His Thr Cys Ile Tyr Asn Met Met Gly Lys Arg Glu Lys Lys Pro  
 450 455 460  
 Gly Glu Phe Gly Lys Ala Lys Gly Ser Arg Ala Ile Trp Phe Met Trp  
 465 470 475 480  
 Leu Gly Ala Arg Phe Leu Glu Phe Glu Ala Leu Gly Phe Leu Asn Glu  
 485 490 495  
 Asp His Trp Leu Gly Arg Lys Asn Ser Gly Gly Gly Val Glu Gly Leu  
 500 505 510  
 Gly Leu Gln Lys Leu Gly Tyr Ile Leu Arg Glu Val Gly Thr Arg Pro  
 515 520 525  
 Gly Gly Lys Ile Tyr Ala Asp Asp Thr Ala Gly Trp Asp Thr Arg Ile  
 530 535 540  
 Thr Arg Ala Asp Leu Glu Asn Glu Ala Lys Val Leu Glu Leu Leu Asp  
 545 550 555 560  
 Gly Glu His Arg Arg Leu Ala Arg Ala Ile Ile Glu Leu Thr Tyr Arg  
 565 570 575  
 His Lys Val Val Lys Val Met Arg Pro Ala Ala Asp Gly Arg Thr Val  
 580 585 590  
 Met Asp Val Ile Ser Arg Glu Asp Gln Arg Gly Ser Gly Gln Val Val  
 595 600 605  
 Thr Tyr Ala Leu Asn Thr Phe Thr Asn Leu Ala Val Gln Leu Val Arg  
 610 615 620

Met Met Glu Gly Glu Gly Val Ile Gly Pro Asp Asp Val Glu Lys Leu  
 625 630 635 640  
 Thr Lys Gly Lys Gly Pro Lys Val Arg Thr Trp Leu Phe Glu Asn Gly  
 645 650 655  
 Glu Glu Arg Leu Ser Arg Met Ala Val Ser Gly Asp Asp Cys Val Val  
 660 665 670  
 Lys Pro Leu Asp Asp Arg Phe Ala Thr Ser Leu His Phe Leu Asn Ala  
 675 680 685  
 Met Ser Lys Val Arg Lys Asp Ile Gln Glu Trp Lys Pro Ser Thr Gly  
 690 695 700  
 Trp Tyr Asp Trp Gln Gln Val Pro Phe Cys Ser Asn His Phe Thr Glu  
 705 710 715 720  
 Leu Ile Met Lys Asp Gly Arg Thr Leu Val Val Pro Cys Arg Gly Gln  
 725 730 735  
 Asp Glu Leu Val Gly Arg Ala Arg Ile Ser Pro Gly Ala Gly Trp Asn  
 740 745 750  
 Val Arg Asp Thr Ala Cys Leu Ala Lys Ser Tyr Ala Gln Met Trp Leu  
 755 760 765  
 Leu Leu Tyr Phe His Arg Arg Asp Leu Arg Leu Met Ala Asn Ala Ile  
 770 775 780  
 Cys Ser Ala Val Pro Val Asn Trp Val Pro Thr Gly Arg Thr Thr Trp  
 785 790 795 800  
 Ser Ile His Ala Gly Gly Glu Trp Met Thr Thr Glu Asp Met Leu Glu  
 805 810 815  
 Val Trp Asn Arg Val Trp Ile Glu Glu Asn Glu Trp Met Glu Asp Lys  
 820 825 830  
 Thr Pro Val Glu Lys Trp Ser Asp Val Pro Tyr Ser Gly Lys Arg Glu  
 835 840 845  
 Asp Ile Trp Cys Gly Ser Leu Ile Gly Thr Arg Ala Arg Ala Thr Trp  
 850 855 860  
 Ala Glu Asn Ile Gln Val Ala Ile Asn Gln Val Arg Ala Ile Ile Gly  
 865 870 875 880  
 Asp Glu Lys Tyr Val Asp Tyr Met Ser Ser Leu Lys Arg Tyr Glu Asp  
 885 890 895  
 Thr Thr Leu Val Glu Asp Thr Val Leu  
 900 905

<210> 9  
 <211> 2697  
 <212> DNA  
 <213> Dengue virus type 1

<400> 9  
 ggacacgggag cccaagggga aacactggga gaaaaatgga aaagacagct aaaccaattg 60  
 agcaagtcag aattcaacac ttacaaaagg agtgggatta tagaggtgga tagatctgaa 120  
 gccaaagagg gggttaaaaag aggagaaccg actaaacacg cagtgtcgag aggaacggcc 180  
 aaactgaggt gggtttgtgga gaggaacctt gtgaaaccag aagggaaaagt catagacctc 240  
 gggtgtggaa gaggtggctg gtcataattat tgcgctgggc tgaagaaagt cacagaagtg 300  
 aaaggatata cgaaaggagg acctggacat gaggaaccaa tcccaatggc aacctatgga 360  
 tggaacctag taaagctata ctccgggaaa gatgtattct ttacaccacc tgagaaatgt 420  
 gacaccctct tgtgtgatat tggtagtcc tctccgaacc caactataga agaaggaaga 480  
 acgttacgtg ttctaaagat ggtggaacca tggctcagag gaaaccaatt ttgcataaaa 540  
 attctaaatc cctatatgcc gagtgtggta gaaacttttg agcaaatgca aagaaaacat 600  
 ggaggaatgc tagtgcgaaa tccactctca agaaactcca ctcatgaaat gtactgggtt 660  
 tcatgtggaa caggaaacat tgtgtcagca gtaaacatga catctagaat gttgctaaat 720  
 cgattcacaa tggctcacag gaagccaaca tatgaaagag acgtggactt aggcgctgga 780  
 acaagacatg tggcagtaga accagaggtg gccaacctag atatcattgg ccagaggata 840  
 gagaatataa aaaatggaca caaatcaaca tggcactatg atgaggacaa tccatacaaa 900  
 acatgggcct atcatggatc atatgaggtc aagccatcag gatcagcctc atccatgggtc 960  
 aatgggtgtg tgagactgct aaccaaacca tgggatgtca ttcccatggg cacacaaaata 1020  
 gccatgactg acaccacacc ctttggacaa cagaggggtg ttaaagagaa agttgacacg 1080  
 cgtacaccaa aagcgaacg aggcacagca caaattatgg aggtgacagc caggtgggta 1140  
 tggggttttc tctctagaaa caaaaaaccc agaactctgca caagagagga gttcacaaga 1200  
 aaagtcaggc caaacgcagc tattggagca gtgttcggtt atgaaaatca atggaactca 1260  
 gcaaaagagg cagtggaaaga tgaacgggtc tgggaccttg tgcacagaga gagggagctt 1320  
 cataaacaag gaaaatgtgc cacgtgtgtc tacaacatga tgggaaaagag agagaaaaaa 1380  
 ttaggagagt tcggaaaggc aaaaggaagt cgcgcaatat ggtacatgtg gttgggagcg 1440  
 cgcttttttag agtttgaagc ctttgggttc atgaatgaag atcactggtt cagcagagag 1500  
 aattcactca gtggagtggg aggagaagga ctccacaaac ttggatacat actcagagac 1560  
 atatcaaaaga ttccaggggg aaatatgtat gcagatgaca cagccggatg ggacacaaga 1620  
 ataacagagg atgatcttca gaatgaggcc aaaatcactg acatcatgga acctgaacat 1680  
 gccctatttg ccacgtcaat ctttaagcta acctaccaa acaaggtagt aaggggtgcag 1740  
 agaccagcga aaaatggaac cgtgatggat gtcatatcca gacgtgacca gagaggaaat 1800  
 ggacagggtg gaacctatgg cttaaacacc ttcaccaaca tggaggccca actaataaga 1860  
 caaatggagt ctgagggaat cttttcacc agcgaatttg aaaccccaaa tctagccgaa 1920  
 agagtcctcg actggttgaa aaaacatggc accgagaggc tgaaaagaat ggcaatcagt 1980  
 ggagatgact gtgtggtgaa accaatcgat gacagatttg caacagcctt aacagctttg 2040  
 aatgacatgg gaaaggtaag aaaagacata ccgcaatggg aaccttcaaa aggatggaat 2100  
 gattggcaac aagtgccttt ctgttcacac catttccacc agctgattat gaaggatggg 2160  
 agggagatag tggtgccatg ccgcaaccaa gatgaacttg taggtagggc cagagtatca 2220  
 caaggcgcg gatggagctt gagagaaact gcatgcctag gcaagtcata tgcacaaatg 2280  
 tggcagctga tgtacttcca caggagagac ttgagattag cggctaatagc tatctgttca 2340  
 gccgttcag ttgattgggt cccaaccagc cgtaccacct ggtcgatcca tgcccaccat 2400  
 caatggatga caacagaaga catgttgtca gtgtggaata gggtttggat agaggaaaac 2460  
 ccatggatgg aggacaagac tcatgtgtcc agttgggaag acgttcata cctaggaaaa 2520  
 agggaaagatc gatgggtgtg atccctaata ggcttaacag cacgagccac ctgggcccac 2580  
 aacatacaag tggccataaa ccaagtgaga aggtcatttg ggaatgagaa ttatctagac 2640  
 ttcatgacat caatgaagag attcaaaaac gagagtgatc ccgaaggggc actctgg 2697

<210> 10  
 <211> 899  
 <212> PRT  
 <213> Dengue virus type 1

<400> 10  
 Gly Thr Gly Ala Gln Gly Glu Thr Leu Gly Glu Lys Trp Lys Arg Gln  
   1                  5                  10                  15  
 Leu Asn Gln Leu Ser Lys Ser Glu Phe Asn Thr Tyr Lys Arg Ser Gly  
                   20                  25                  30  
 Ile Ile Glu Val Asp Arg Ser Glu Ala Lys Glu Gly Leu Lys Arg Gly  
                   35                  40                  45  
 Glu Pro Thr Lys His Ala Val Ser Arg Gly Thr Ala Lys Leu Arg Trp  
                   50                  55                  60  
 Phe Val Glu Arg Asn Leu Val Lys Pro Glu Gly Lys Val Ile Asp Leu  
   65                  70                  75                  80  
 Gly Cys Gly Arg Gly Gly Trp Ser Tyr Tyr Cys Ala Gly Leu Lys Lys  
                   85                  90                  95  
 Val Thr Glu Val Lys Gly Tyr Thr Lys Gly Gly Pro Gly His Glu Glu  
                   100                  105                  110  
 Pro Ile Pro Met Ala Thr Tyr Gly Trp Asn Leu Val Lys Leu Tyr Ser  
                   115                  120                  125  
 Gly Lys Asp Val Phe Phe Thr Pro Pro Glu Lys Cys Asp Thr Leu Leu  
                   130                  135                  140  
 Cys Asp Ile Gly Glu Ser Ser Pro Asn Pro Thr Ile Glu Glu Gly Arg  
   145                  150                  155                  160  
 Thr Leu Arg Val Leu Lys Met Val Glu Pro Trp Leu Arg Gly Asn Gln  
                   165                  170                  175  
 Phe Cys Ile Lys Ile Leu Asn Pro Tyr Met Pro Ser Val Val Glu Thr  
                   180                  185                  190  
 Leu Glu Gln Met Gln Arg Lys His Gly Gly Met Leu Val Arg Asn Pro  
                   195                  200                  205  
 Leu Ser Arg Asn Ser Thr His Glu Met Tyr Trp Val Ser Cys Gly Thr  
                   210                  215                  220  
 Gly Asn Ile Val Ser Ala Val Asn Met Thr Ser Arg Met Leu Leu Asn  
   225                  230                  235                  240  
 Arg Phe Thr Met Ala His Arg Lys Pro Thr Tyr Glu Arg Asp Val Asp  
                   245                  250                  255

Leu Gly Ala Gly Thr Arg His Val Ala Val Glu Pro Glu Val Ala Asn  
 260 265 270  
 Leu Asp Ile Ile Gly Gln Arg Ile Glu Asn Ile Lys Asn Gly His Lys  
 275 280 285  
 Ser Thr Trp His Tyr Asp Glu Asp Asn Pro Tyr Lys Thr Trp Ala Tyr  
 290 295 300  
 His Gly Ser Tyr Glu Val Lys Pro Ser Gly Ser Ala Ser Ser Met Val  
 305 310 315 320  
 Asn Gly Val Val Arg Leu Leu Thr Lys Pro Trp Asp Val Ile Pro Met  
 325 330 335  
 Val Thr Gln Ile Ala Met Thr Asp Thr Thr Pro Phe Gly Gln Gln Arg  
 340 345 350  
 Val Phe Lys Glu Lys Val Asp Thr Arg Thr Pro Lys Ala Lys Arg Gly  
 355 360 365  
 Thr Ala Gln Ile Met Glu Val Thr Ala Arg Trp Leu Trp Gly Phe Leu  
 370 375 380  
 Ser Arg Asn Lys Lys Pro Arg Ile Cys Thr Arg Glu Glu Phe Thr Arg  
 385 390 395 400  
 Lys Val Arg Ser Asn Ala Ala Ile Gly Ala Val Phe Val Asp Glu Asn  
 405 410 415  
 Gln Trp Asn Ser Ala Lys Glu Ala Val Glu Asp Glu Arg Phe Trp Asp  
 420 425 430  
 Leu Val His Arg Glu Arg Glu Leu His Lys Gln Gly Lys Cys Ala Thr  
 435 440 445  
 Cys Val Tyr Asn Met Met Gly Lys Arg Glu Lys Lys Leu Gly Glu Phe  
 450 455 460  
 Gly Lys Ala Lys Gly Ser Arg Ala Ile Trp Tyr Met Trp Leu Gly Ala  
 465 470 475 480  
 Arg Phe Leu Glu Phe Glu Ala Leu Gly Phe Met Asn Glu Asp His Trp  
 485 490 495  
 Phe Ser Arg Glu Asn Ser Leu Ser Gly Val Glu Gly Glu Gly Leu His  
 500 505 510  
 Lys Leu Gly Tyr Ile Leu Arg Asp Ile Ser Lys Ile Pro Gly Gly Asn  
 515 520 525  
 Met Tyr Ala Asp Asp Thr Ala Gly Trp Asp Thr Arg Ile Thr Glu Asp  
 530 535 540

Asp Leu Gln Asn Glu Ala Lys Ile Thr Asp Ile Met Glu Pro Glu His  
 545 550 555 560  
 Ala Leu Leu Ala Thr Ser Ile Phe Lys Leu Thr Tyr Gln Asn Lys Val  
 565 570 575  
 Val Arg Val Gln Arg Pro Ala Lys Asn Gly Thr Val Met Asp Val Ile  
 580 585 590  
 Ser Arg Arg Asp Gln Arg Gly Ser Gly Gln Val Gly Thr Tyr Gly Leu  
 595 600 605  
 Asn Thr Phe Thr Asn Met Glu Ala Gln Leu Ile Arg Gln Met Glu Ser  
 610 615 620  
 Glu Gly Ile Phe Ser Pro Ser Glu Leu Glu Thr Pro Asn Leu Ala Glu  
 625 630 635 640  
 Arg Val Leu Asp Trp Leu Lys Lys His Gly Thr Glu Arg Leu Lys Arg  
 645 650 655  
 Met Ala Ile Ser Gly Asp Asp Cys Val Val Lys Pro Ile Asp Asp Arg  
 660 665 670  
 Phe Ala Thr Ala Leu Thr Ala Leu Asn Asp Met Gly Lys Val Arg Lys  
 675 680 685  
 Asp Ile Pro Gln Trp Glu Pro Ser Lys Gly Trp Asn Asp Trp Gln Gln  
 690 695 700  
 Val Pro Phe Cys Ser His His Phe His Gln Leu Ile Met Lys Asp Gly  
 705 710 715 720  
 Arg Glu Ile Val Val Pro Cys Arg Asn Gln Asp Glu Leu Val Gly Arg  
 725 730 735  
 Ala Arg Val Ser Gln Gly Ala Gly Trp Ser Leu Arg Glu Thr Ala Cys  
 740 745 750  
 Leu Gly Lys Ser Tyr Ala Gln Met Trp Gln Leu Met Tyr Phe His Arg  
 755 760 765  
 Arg Asp Leu Arg Leu Ala Ala Asn Ala Ile Cys Ser Ala Val Pro Val  
 770 775 780  
 Asp Trp Val Pro Thr Ser Arg Thr Thr Trp Ser Ile His Ala His His  
 785 790 795 800  
 Gln Trp Met Thr Thr Glu Asp Met Leu Ser Val Trp Asn Arg Val Trp  
 805 810 815  
 Ile Glu Glu Asn Pro Trp Met Glu Asp Lys Thr His Val Ser Ser Trp  
 820 825 830



Glu Asp Val Pro Tyr Leu Gly Lys Arg Glu Asp Arg Trp Cys Gly Ser  
835 840 845

Leu Ile Gly Leu Thr Ala Arg Ala Thr Trp Ala Thr Asn Ile Gln Val  
850 855 860

Ala Ile Asn Gln Val Arg Arg Leu Ile Gly Asn Glu Asn Tyr Leu Asp  
865 870 875 880

Phe Met Thr Ser Met Lys Arg Phe Lys Asn Glu Ser Asp Pro Glu Gly  
885 890 895

Ala Leu Trp

<210> 11

<211> 2701

<212> DNA

<213> Dengue virus type 2

<400> 11

```

ggaactggca acataggaga gacgcttggg gagaaatgga aaagccgatt gaacgcattg 60
gggaaaagtg aattccagat ctacaagaaa agtggaatcc aggaagtggg tagaacctta 120
gcaaaagaag gcattaaaag aggagaaacg gaccatcacg ctgtgtcgcg aggctcagca 180
aaactgagat ggttcgctcg gagaaatatg gtcacaccag aagggaaagt agtggacctc 240
ggttgcgcca gaggaggctg gtcatactat tgtggggggac taaagaatgt aagagaagtc 300
aaaggcctga caaaaggagg accaggacat gaagaacca tcccatgtc aacatatggg 360
tggaatctag tacgtcttca aagtggagtt gacgttttct tcaactccgcc agaaaagtgt 420
gacacattgt tgtgtgacat aggggagtcg tcaccaaata ccacggtaga agcaggacga 480
acactcagag tccttaactt agtggaaaat tgggtgaaca acaacacca attttgcata 540
aaggttctca acccatacat gccctcagtc atagaaaaaa tggaagcact acaaaggaaa 600
tatggaggag ccttagtgag gaatccactc tcacgaaact ccacacatga gatgtactgg 660
gtatccaatg cctccgggaa catagtgtca tcagtgaaca tgatttcaag gatgttgatc 720
aacagattca caatgagaca caagaaagcc acttacgagc cagatgtaga cctcgggaagc 780
ggaacccgca acatcggaat tgaaagttag ataccaaacc tagacataat cgggaaaaga 840
atagaaaaaa taaaacaaga gcatgaaaca tcatggcact atgaccaaga ccaccatac 900
aaaacgtggg cttaccatgg cagctatgaa acaaaacaaa ctggatcagc atcatccatg 960
gtgaacggag tggtcagact gctgacaaaa ccttgggacg tcgtcccat ggtgacacag 1020
atggcaatga cagacacgac tccatttggg caacagcgcg tttttaaaaga aaaagtggac 1080
acgagaaccc aagaaccgaa agaaggcaca aagaaactaa tgaaaatcac ggcagagtgg 1140
ctttggaaaag aactagggaâ gaaaaagaca cctaggatgt gcactagaga agaattcaca 1200
agaaagggtga gaagcaatgc agccttgggg gccatattca ctgatgagaa caagtggaag 1260
tcggcacgtg aggctgttga agatagtagg ttttgggagc tggttgacaa ggaaaggaat 1320
ctccatcttg aaggaaaagt tgaaacatgt gtgtataaca tgatgggaaa aagagagaag 1380
aagctagggg agttcggcaa ggcaaaaggc agcagagcca tatggtacat gtggcttggg 1440
gcacgcttct tagagtttga agccctagga ttcttgaatg aagatcactg gttctccaga 1500
gagaactcct tgagtggagt ggaaggagaa gggctgcaca agctaggtta cattttaaga 1560
gacgtgagca agaaagaggg aggagcaatg tatgccgatg acaccgcagg atgggacaca 1620
agaatcacac tagaagacct aaaaaatgaa gaaatggtaa caaacacat ggaaggagaa 1680
cacaagaaac tagccgaggc cattttcaaa ttaacgtacc aaaacaaggt ggtgcgtgtg 1740
caaagacca caccaagagg cacagtaatg gatatcatat cgagaagaga ccaaagaggt 1800
agtggacaag ttggtacctg tggactcaat actttcacca atatggaagc ccaactaatc 1860

```

```

agacagatgg agggagaagg agtcttcaaa agcattcagc acctgacagt cacagaagaa 1920
atcgccgtgc aaaactgggt agcaagagta gggcgcgaaa ggttatcaag aatggccatc 1980
agtggagatg attgtgttgt gaaaccttta gatgacaggt tcgcaagcgc tttaacagct 2040
ctaaatgaca tgggaaagggt taggaaagac atacaacaat gggaaaccttc aagaggatgg 2100
aacgattgga cacaagtgcc cttctgttca caccatttcc atgagttaat catgaaagac 2160
ggccgcgtac ttgtagtacc atgcagaaac caagatgaac tgattggtag agcccgaatt 2220
tcccaaggag ctgggtgggtc tttgcgagag acggcctgtt tggggaagtc ctacgccccaa 2280
atgtggagct tgatgtactt ccacagacgt gacctcaggc tggcggctaa tgctatttgc 2340
tcggcagtc ccatcacattg ggttccaaca agtagaaciaa cctgggtccat acacgccaaa 2400
catgaatgga tgacaacgga agacatgctg acagtctgga acaggggtgtg gattcaagaa 2460
aaccatgga tgggaagaaa aactccagtg gaatcatggg aggaaatccc atacttgggg 2520
aaaagagaag accaatgggtg cggctcattg attgggctaa caagcagggc cacctgggca 2580
aagaacatcc aaacagcaat aaatcaagtt agatccctta taggcaatga ggaatacaca 2640
gattacatgc catccatgaa aagattcaga agagaagagg aagaggcagg agtcctgtgg 2700
t

```

```

<210> 12
<211> 900
<212> PRT
<213> Dengue virus type 2

```

```

<400> 12
Gly Thr Gly Asn Ile Gly Glu Thr Leu Gly Glu Lys Trp Lys Ser Arg
  1              5              10              15

Leu Asn Ala Leu Gly Lys Ser Glu Phe Gln Ile Tyr Lys Lys Ser Gly
      20              25              30

Ile Gln Glu Val Asp Arg Thr Leu Ala Lys Glu Gly Ile Lys Arg Gly
      35              40              45

Glu Thr Asp His His Ala Val Ser Arg Gly Ser Ala Lys Leu Arg Trp
      50              55              60

Phe Val Glu Arg Asn Met Val Thr Pro Glu Gly Lys Val Val Asp Leu
      65              70              75              80

Gly Cys Gly Arg Gly Gly Trp Ser Tyr Tyr Cys Gly Gly Leu Lys Asn
      85              90              95

Val Arg Glu Val Lys Gly Leu Thr Lys Gly Gly Pro Gly His Glu Glu
      100              105              110

Pro Ile Pro Met Ser Thr Tyr Gly Trp Asn Leu Val Arg Leu Gln Ser
      115              120              125

Gly Val Asp Val Phe Phe Thr Pro Pro Glu Lys Cys Asp Thr Leu Leu
      130              135              140

Cys Asp Ile Gly Glu Ser Ser Pro Asn Pro Thr Val Glu Ala Gly Arg
      145              150              155              160

```

Thr Leu Arg Val Leu Asn Leu Val Glu Asn Trp Leu Asn Asn Asn Thr  
 165 170 175  
 Gln Phe Cys Ile Lys Val Leu Asn Pro Tyr Met Pro Ser Val Ile Glu  
 180 185 190  
 Lys Met Glu Ala Leu Gln Arg Lys Tyr Gly Gly Ala Leu Val Arg Asn  
 195 200 205  
 Pro Leu Ser Arg Asn Ser Thr His Glu Met Tyr Trp Val Ser Asn Ala  
 210 215 220  
 Ser Gly Asn Ile Val Ser Ser Val Asn Met Ile Ser Arg Met Leu Ile  
 225 230 235 240  
 Asn Arg Phe Thr Met Arg His Lys Lys Ala Thr Tyr Glu Pro Asp Val  
 245 250 255  
 Asp Leu Gly Ser Gly Thr Arg Asn Ile Gly Ile Glu Ser Glu Ile Pro  
 260 265 270  
 Asn Leu Asp Ile Ile Gly Lys Arg Ile Glu Lys Ile Lys Gln Glu His  
 275 280 285  
 Glu Thr Ser Trp His Tyr Asp Gln Asp His Pro Tyr Lys Thr Trp Ala  
 290 295 300  
 Tyr His Gly Ser Tyr Glu Thr Lys Gln Thr Gly Ser Ala Ser Ser Met  
 305 310 315 320  
 Val Asn Gly Val Val Arg Leu Leu Thr Lys Pro Trp Asp Val Val Pro  
 325 330 335  
 Met Val Thr Gln Met Ala Met Thr Asp Thr Thr Pro Phe Gly Gln Gln  
 340 345 350  
 Arg Val Phe Lys Glu Lys Val Asp Thr Arg Thr Gln Glu Pro Lys Glu  
 355 360 365  
 Gly Thr Lys Lys Leu Met Lys Ile Thr Ala Glu Trp Leu Trp Lys Glu  
 370 375 380  
 Leu Gly Lys Lys Lys Thr Pro Arg Met Cys Thr Arg Glu Glu Phe Thr  
 385 390 395 400  
 Arg Lys Val Arg Ser Asn Ala Ala Leu Gly Ala Ile Phe Thr Asp Glu  
 405 410 415  
 Asn Lys Trp Lys Ser Ala Arg Glu Ala Val Glu Asp Ser Arg Phe Trp  
 420 425 430  
 Glu Leu Val Asp Lys Glu Arg Asn Leu His Leu Glu Gly Lys Cys Glu  
 435 440 445

Thr Cys Val Tyr Asn Met Met Gly Lys Arg Glu Lys Lys Leu Gly Glu  
 450 455 460  
 Phe Gly Lys Ala Lys Gly Ser Arg Ala Ile Trp Tyr Met Trp Leu Gly  
 465 470 475 480  
 Ala Arg Phe Leu Glu Phe Glu Ala Leu Gly Phe Leu Asn Glu Asp His  
 485 490 495  
 Trp Phe Ser Arg Glu Asn Ser Leu Ser Gly Val Glu Gly Glu Gly Leu  
 500 505 510  
 His Lys Leu Gly Tyr Ile Leu Arg Asp Val Ser Lys Lys Glu Gly Gly  
 515 520 525  
 Ala Met Tyr Ala Asp Asp Thr Ala Gly Trp Asp Thr Arg Ile Thr Leu  
 530 535 540  
 Glu Asp Leu Lys Asn Glu Glu Met Val Thr Asn His Met Glu Gly Glu  
 545 550 555 560  
 His Lys Lys Leu Ala Glu Ala Ile Phe Lys Leu Thr Tyr Gln Asn Lys  
 565 570 575  
 Val Val Arg Val Gln Arg Pro Thr Pro Arg Gly Thr Val Met Asp Ile  
 580 585 590  
 Ile Ser Arg Arg Asp Gln Arg Gly Ser Gly Gln Val Gly Thr Tyr Gly  
 595 600 605  
 Leu Asn Thr Phe Thr Asn Met Glu Ala Gln Leu Ile Arg Gln Met Glu  
 610 615 620  
 Gly Glu Gly Val Phe Lys Ser Ile Gln His Leu Thr Val Thr Glu Glu  
 625 630 635 640  
 Ile Ala Val Gln Asn Trp Leu Ala Arg Val Gly Arg Glu Arg Leu Ser  
 645 650 655  
 Arg Met Ala Ile Ser Gly Asp Asp Cys Val Val Lys Pro Leu Asp Asp  
 660 665 670  
 Arg Phe Ala Ser Ala Leu Thr Ala Leu Asn Asp Met Gly Lys Val Arg  
 675 680 685  
 Lys Asp Ile Gln Gln Trp Glu Pro Ser Arg Gly Trp Asn Asp Trp Thr  
 690 695 700  
 Gln Val Pro Phe Cys Ser His His Phe His Glu Leu Ile Met Lys Asp  
 705 710 715 720  
 Gly Arg Val Leu Val Val Pro Cys Arg Asn Gln Asp Glu Leu Ile Gly  
 725 730 735

Arg Ala Arg Ile Ser Gln Gly Ala Gly Trp Ser Leu Arg Glu Thr Ala  
 740 745 750

Cys Leu Gly Lys Ser Tyr Ala Gln Met Trp Ser Leu Met Tyr Phe His  
 755 760 765

Arg Arg Asp Leu Arg Leu Ala Ala Asn Ala Ile Cys Ser Ala Val Pro  
 770 775 780

Ser His Trp Val Pro Thr Ser Arg Thr Thr Trp Ser Ile His Ala Lys  
 785 790 795 800

His Glu Trp Met Thr Thr Glu Asp Met Leu Thr Val Trp Asn Arg Val  
 805 810 815

Trp Ile Gln Glu Asn Pro Trp Met Glu Asp Lys Thr Pro Val Glu Ser  
 820 825 830

Trp Glu Glu Ile Pro Tyr Leu Gly Lys Arg Glu Asp Gln Trp Cys Gly  
 835 840 845

Ser Leu Ile Gly Leu Thr Ser Arg Ala Thr Trp Ala Lys Asn Ile Gln  
 850 855 860

Thr Ala Ile Asn Gln Val Arg Ser Leu Ile Gly Asn Glu Glu Tyr Thr  
 865 870 875 880

Asp Tyr Met Pro Ser Met Lys Arg Phe Arg Arg Glu Glu Glu Glu Ala  
 885 890 895

Gly Val Leu Trp  
 900

<210> 13

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 13

Cys Arg Val Lys Met Glu Lys Leu Gln Leu Lys Gly Thr Thr  
 1 5 10

<210> 14

<211> 14

<212> PRT

<213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic peptide

&lt;400&gt; 14

Cys Gln Leu Leu Met Arg Glu Val Lys Thr Gly Thr Lys Lys  
 1 5 10

&lt;210&gt; 15

&lt;211&gt; 19

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic peptide

&lt;400&gt; 15

Cys Ser Thr Lys Ala Ile Gly Arg Thr Ile Leu Lys Glu Asn Ile Lys  
 1 5 10 15

Tyr Glu Val

&lt;210&gt; 16

&lt;211&gt; 23

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic primer

&lt;400&gt; 16

gactgaagag ggcaatgttg agc

23

&lt;210&gt; 17

&lt;211&gt; 21

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic primer

&lt;400&gt; 17

gcaataactg cggacytctg c

21

<210> 18  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
primer

<400> 18  
gaattcttca actgccttgg aatgagc

27

<210> 19  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
primer

<400> 19  
ctgcagttat ttgccaatgc tgcttcc

27

<210> 20  
<211> 6  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
6xHis tag

<400> 20  
His His His His His His  
1 5